THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LVIII. SATURDAY, JANUARY 10, 1891. NO. 2.

ORIGINAL LECTURES.

DIGESTION, ASSIMILATION, AND OXIDATION; THEIR NORMAL AND ABNORMAL CONDITIONS IN RELATION TO HEALTH AND DISEASE.

A Series of Clinical Lectures delivered at the New York Post-Graduate Medical School and Hospital.

BY WILLIAM HENRY PORTER, M.D.,
PROFESSOR OF CLINICAL MEDICINE AND PATHOLOGY.

LECTURE I.

GENTLEMEN: To-day we shall commence to study together the most interesting and common class of maladies which are presented to the practitioner, namely, those commonly known as "Dyspepsias," or functional derangements of the digestive, absorbing, hepatic, and assimilating tract.

First, however, I wish to present to you an illustrative case, brought to my clinic by Dr. N., of Ellensville, N. Y., for examination and advice as to treatment. The patient, Mr. J., aged fifty-seven years, a carpenter by occupation, tells us that until five years ago he considered himself a perfectly sound and healthy man. From that time he has complained of a sense of soreness in the epigastric region. His appetite has been poor, and he has lived upon a light vegetable diet. Food for some time after being taken causes no distress or pain, but in from one to two hours, or more, distress commences, his abdomen becomes tympanitic, often with considerable borborygmi and general discomfort. This discomfort lasts for a varying length of time, until a reverse peristalsis is developed and the gas which has accumulated in the ascending and transverse colon is forced back into the small intestine, and finally to the stomach, and is then belched up. There is then relief until a few hours after the next meal, when the same phenomena are repeated.

The pain and distress led to the supposition that the stomach was primarily at fault, but the symptoms are not due to a gastric condition, but rather to the over-distended colon, which is wedged in under or posterior to the stomach and presses back upon the solar plexus, thus causing intense pain in the epigastric region. As a general rule, when the primary difficulty is located in the stomach, the pain and distress in the epigastric region come on during or immediately after the ingestion of the meal, and are immediately followed by the eructation of gas and the belching up of an acid, watery fluid, or even by nausea and vomiting.

When the difficulty is in the intestines and liver there is no pain or discomfort immediately after eating, but in an hour or more the distress commences and lasts for a number of hours. Pain now in the epigastric region becomes a prominent symptom, so, also, the tympanites, borborygmus, and general distress until after a considerable time, when the gas escapes by either the mouth or the anus, and relief is obtained.

This patient complains also of pronounced constipation, which shows that there is a deficiency in both the quantity and quality of bile which is discharged into the intestine. When the bile is defective in quality but abundant in quantity, it acts as an undue irritant and tends to produce looseness of the bowels, with frequent tarry and painful stools.

By observing these clinical facts we can differentiate between the two conditions of functional derangement in the bile-producing power, namely, those of over-production and under-production—the quality, however, being impaired in both instances.

This patient also suffers from headache, insomnia, vertigo, and general nervous irritability—a well-marked train of symptoms often classed under the vague term "neurasthenia." These symptoms have continued for five years, until now he is considerably emaciated, frequently suffers from night-sweats, and is physically and mentally weak. The tongue, as you can readily see, is heavily coated, pale, soft, and flabby, and its margins are indented by the teeth. These conditions tell us at once that we have imperfect assimilation and impaired nutrition.

The skin has a dirty, muddy appearance, and looks as if it were thickened, and there is discoloration of the conjunctivæ, indications of hepatic derangement.

In such cases the urine is usually scanty, high-colored, superacid, and of high specific gravity, and, as a rule, does not contain albumin, glucose, or casts. If, however, the condition is very prolonged, it may result in the production of albumin and casts, or glucose, or combinations of these. But more frequently we find an abundance of urates, uric acid, or oxalates, usually the former. In many instances the urine is so intensely acid that it remains perfectly clear and free from deposit for days or weeks after it has been discharged. The rule is, that when digestion and assimilation are properly effected, the urine is but faintly acid, and will change to an alkaline reaction within forty-eight or seventy-two hours at the longest.

By observing these clinical phenomena, and by a study of the urine, both as to its chemical composition and microscopic sediments, and the time at which they are formed, we can learn with certainty where the difficulty is located, and also the condition of the digestive and assimilating functions, and the manner in which the liver is doing its work.

One of my theories in relation to nutrition and disease is, that many of the chronic maladies which we meet with late in life have had their origin, not in inherited taints, but rather in false methods of feeding from infancy up to manhood. If we observe Nature

closely, we notice in almost all classes of animals, the herbivora not excluded, that the primary food-stuff is composed very largely of the nitrogenous, or CHNOS, compounds in contra-distinction to the starches, sugars, and fats, or the CHO class. Organic chemistry teaches us that the animal economy cannot take a CHO compound and join free nitrogen to it and form a proteid substance. Consequently, so far as nourishing or building up any of the component parts of the body is concerned, starch, sugar, and fat furnish no nutriment to the system, and in this sense I shall continue to speak of the CHO compounds as being absolutely non-nutritious, and only of service to the body in so far as they yield heat, energy, lubrication, and rotundity of form. That they are more easily oxidized than the nitrogenous compounds I think no one can deny, and in being more easily oxidized they exhaust the oxygenating capacity of the blood and leave it deficient in a supply of oxygen for the complete oxidation of the nitrogenous compounds. These being incompletely oxidized, true nutrition is impaired and the foundation is laid for an innumerable host of ills.

As I have already asserted, these maladies are directly traceable back to infancy. Nature intended that the infant and growing child should be largely supplied with a nitrogenous pabulum, and with just enough sugar and fat to keep it warm, and to supply lubrication, and a moderate amount of rotundity. So soon as the infant can be removed from the breast or bottle, the invariable tendency on the part of the laity is to take the child away from a strongly nitrogenous diet and substitute a food composed largely of the CHO compounds. The reason for this is that "somebody" has said "that this class of food-stuffs is the best." They, at least, know that it tends to make fat babies that will roll one way as well as the other!

The result of this process of false feeding is that vitality is sapped in infancy, and when the individual is attacked by acute disease he rapidly succumbs to its influence. A false appetite is also established for the CHO compounds—an appetite for a stimulating rather than a nutritive class of food-stuffs. The child soon prefers starch, sugar, and fatty foods to the plain nutritive nitrogenous compounds. Soon the demand on the part of the system for this class of CHO stimulants is not fully met by the starch, sugar, and fat, until, finally, the more active C_2H_6O stimulant—alcohol—is called upon to satisfy the demand. This continues until well-defined habits of intemperance are developed, as is most perfectly illustrated in the Scotch and Irish races, fed, as they are, on the oat and potato until the stronger whiskies alone can satisfy the demands of nature.

Next, we come to the period of puberty, when the generative system is to become more fully developed. These changes call for an increased nutritive supply, but owing to the falsely-acquired appetite and somewhat deteriorated vitality, nature is not equal to the demand, the general systemic vitality fails, or the reproductive organs are incompletely developed. A not uncommon practice is the attempt to assist nature by stimulating with wines or other forms of alcohol, which, although they temporarily improve the condition, still further deplete the nutritive vitality and lay the foundation for diseases of the reproductive organs, nervous system, etc. In consequence of this condition, the reproductive functions, physiologically speaking, remain at a low ebb, if they are not altogether lost.

As the child approaches adult age, when the greatest physical and mental capacity should be present, we find that this false appetite and false method of feeding have become deteriorating factors, and when the attempt is made suddenly to accomplish great physical and mental work there is noticeable a great and rapid expenditure of the vital forces, and the system is left in such a lowered condition that it is literally a good pabulum for disease-germs and poisons of all kinds.

It is by this process of false feeding and devitalization, according to my belief, that the foundation is laid for most of the tuberculosis which appears at this period of life. The proper soil is present upon which the tubercle bacillus can thrive and multiply and stimulate a growth of tubercle tissue. For this reason it seems difficult to comprehend how any treatment which can be brought to bear upon the system shall at once, or in a moderately short time, renourish and revitalize the system so that it can resist the inroads of germs or other forms of organic poisons.

If Koch's lymph will at once revitalize or renourish the individual and at once change habits of years' duration, then, and only then, can it unquestionably stamp out tuberculosis! But, as yet, I am not aware of Koch having made any such assertion.

With these few preliminary remarks, let me say that a thorough understanding of the nutritive functions of the body is of the utmost importance, if we wish to attain anything like success, or the ability to cope with the inroads of either acute or chronic diseases.

First, I propose to study with you the fluids that act upon the materials or food-stuffs which are taken into the system for the growth, maintenance, and activity of the animal economy, and for convenience I have tabulated them in the manner shown on page 31.

The composition of the saliva is rather simple as compared with that of many of the other digestive fluids, and contains only one organic ferment, known as ptyalin. Chemically speaking, the saliva is, however, a more or less complex substance, having an alkaline reaction, a specific gravity of 1005, and containing, besides ptyalin, water, and numerous salts, a trace of derived albumin, mucosine, etc.

The functions of the saliva may be stated as mechanical and chemico-physiological. Under the former heading it may be said to lubricate the mouth and assist in mastication of the food. It also acts as a lubricant to the passage of the bolus through the fauces, pharynx, and œsophagus, and on into the stomach. Having reached the stomach, it is, by its alkalinity, an important factor in exciting gastric secretion. This action is produced according to the common law, that alkalies brought in contact with acid-secreting membranes tend to stimulate the flow of acid secretions, while acids brought in contact with acid-secreting membranes tend to decrease the flow of the acid secretion. The reverse of this law is true for the alkaline-secreting membranes. If we wish to develop and retain the most perfect digestion, the food-stuffs should be thoroughly masticated in as dry a state as is compatible with comfort; for by so doing the largest possible amount of alkaline saliva is

excreted, which, as we have already seen, is an important factor in exciting the gastric flow. We must abandon the American fashion of bolting the food and washing it down in solid lumps with some fluid, such as milk, tea, coffee, or alcoholic stimulants. Many of our digestive difficulties commence in this way, by depriving nature of one of her stimuli. This leads also to similar difficulties lower down in the alimentary canal.

Fluid or tissue.	Ferment.	Action.
Saliva.	Ptyalin.	Converts starch into maltose.
Gastric juice.	Pepsin.	Converts proteids into peptones.
	Milk-curdling.	Curdles caseine of milk.
	Lactic acid.	Splits milk sugar into lactic acid.
	Fat-splitting.	Splits fats into glycerin and fatty acid.
Secretion of Brunner's glands.	.....	Liquefies proteids at 98.5° F.
		Converts maltose into glucose.
Pancreatic juice.	Amylopsin.	Converts starch into maltose.
	Trypsin.	Converts proteids into peptones.
	Steapsin.	Splits fat into glycerin and fatty acid.
	Milk-curdling.	Curdles caseine of milk.
	Emulsive.(?)	Emulsifies fat.
Intestinal juice.	Diastatic.	Converts maltose into glucose.
	Proteolytic.	Changes fibrin into peptone.(?)
	Invertin.	Changes cane sugar into glucose.
	Milk-curdl'g(?)	Curdles caseine of milk.(?)
Bile and bile acids.	....	Emulsifies neutral fats.
		Converts starch into sugar.
		Converts glycogen into sugar.
		Excites contractions of muscular coat.
		Stimulates muscles of the villi.
		Excites vital activity of intestinal epithelium.
		Moistens intestinal wall.
		Lubricates the colon.
		Prevents decomposition; is antiseptic.
Hepatic function.	Glycogenic.	Changes glucose into glycogen.
	Bile-secreting.	For use in digestion.
	Bile-excreting.	To eliminate poisons and drugs.
	Peptone-destroying.	Converts peptones into serum-albumin, and globules.
	Ptomaïne-destroying.	Converts poisonous ptomaïnes into inert ptomaïnes.
	Germ-destroying.	
Blood.	Diastatic fibrin forming.	
	Fibrin-forming ferments.	
Chyle. Liver.(?) Milk. Most tissue.	Diastatic ferments.	
Muscle.	Peptone-forming ferments.	

The chemico-physiological activity of the saliva is located in the ptyalin, which is an organic nitrogenous ferment, having for its function the hydration of starch, or the conversion of starch into maltose, conveying it, as it were, one step forward in the chemico-physiological process. This action is effected in only an alkaline solution, or in an acid medium the percentage acidity of which has not exceeded ten per cent. In this respect it is essential that a large quantity of the alkaline saliva should be carried into the stomach, for it not only helps to excite the flow of gastric juice, but it also keeps down the acidity of the fluids contained in the stomach, thus giving the ptyalin a longer time in which to act upon the starches, and so decreases the amount of work that otherwise must be accomplished in the intestines or left undone.

My advice to patients is never to drink liquids of any kind while eating, but to take the food as dry as possible. This, of necessity, requires more prolonged mastication to excite sufficient saliva for the easy passage of the bolus to the stomach. By following this rule the largest possible amount of alkaline saliva is carried into stomach with each meal. With this method of eating, the food in the stomach is necessarily in too solid a state for the most perfect gastric digestion, and to obviate this difficulty completely fluids should be freely taken before or after the meal. This causes the particles of food in the stomach to be widely separated, and thus to present the largest possible surface to be attacked by the gastric digestive fluids, and at the same time the sum total of its alkalinity has not been reduced. The best fluid to be taken after a meal is coffee, made not very strong, and drunk without milk or sugar. The active principle of the coffee—caffeine, $C_8H_{12}N_4O_3$—is a safe stimulant to use, being a nitrogenous substance that can be utilized as a food, which is not the case with the purely CHO compounds.

Having reached the stomach under the most favorable circumstances, we find, by reference to our table, four ferments besides the hydrochloric acid to act upon the food-stuffs before they are passed on to the intestines. These are the milk-curdling, peptic, lactic-acid forming, and the fat-splitting ferments. The presence of the first and second is unquestioned and of the most importance. The third is quite generally accepted, while the fourth is somewhat in doubt.

For convenience of study our food-stuffs may be separated into two common classes: first, the nutritious, albuminous, nitrogenous, or CHNOS compounds, and, second, the non-nutritious starches, sugars, and fats, or the CHO compounds.

As milk is largely used, both as an ordinary article of diet and as a special diet for the sick, I will refer, first, to changes produced in it before its nitrogenous compound, the caseine, is ready to be attacked by the true digestive processes. The milk, as ordinarily taken, is in a fluid state. Its caseine must be precipitated before the hydrochloric acid and pepsin can act upon it. In the secretions of the stomach there are two substances capable of precipitating caseine—hydrochloric acid and a special organic ferment known as the milk-curdling ferment. If the caseine is precipitated by the hydrochloric acid of the stomach, it will be solidified in hard, tough, and leathery lumps, but when precipitated by the milk-curdling ferment it is thrown down in fine, feathery flakes, presenting a large surface and easily permeated and digested by the pepsin.

It is a well-known fact that when the milk or any food-stuff is taken into the stomach cold, it tends to excite a free flow of hydrochloric acid and decreases the

milk-curdling ferment; the reverse takes place when the milk or any food-stuff is taken warm. Milk taken after a hearty meal comes in contact with an abundance of hydrochloric acid, and is apt to solidify in hard, tough lumps, and to impair digestion. Therefore, to have the milk placed under the most favorable circumstances for digestion, it should not be taken cold, or with, or after, a full meal, but should be taken quite warm, or even hot, and alone. The addition of lime-water also favors precipitation in this fine, feathery form. I am, however, in the habit of using small and repeated doses of fel bovis inspissatum, which seems to stimulate a flow of the milk-curdling ferment. By observing these rules and administering the fel bovis, I have yet to see a stomach that cannot easily be made to prepare the milk thoroughly for the action of the hydrochloric acid and pepsin.

The next step in the digestive process in the stomach is the action of the hydrochloric acid. This acid, which is the true acid secretion of the gastric juice, attacks all forms of albuminous or nitrogenous compounds, vegetable as well as animal, and changes them from a native or derived state into a uniform acid-albumin, commonly called syntonin. The reason for this change is the fact that the pepsin can attack an acid-albumin only, and for its perfect action requires an acid medium. The pepsin produces a peculiar and gradual gelatinization, by which the semi-solid syntonin is transformed, first, into a propeptone, then into albumoses, and, finally, into a liquid and easily-diffusible peptone. An important fact to be remembered in connection with the peptonizing process in the stomach is, that the peptic action is a slow and comparatively weak process, and, as a result, only a small portion of the albumin is completely transformed in the stomach into a diffusible peptone. The major part passes untransformed into the intestine, where it is changed into an alkaline albumin, to be attacked by the more vigorous and erosive tryptic ferments of the pancreatic and intestinal secretions, and converted into a peptone.

The starches, sugars, and fats, practically speaking, are unaffected in the stomach, but the nitrogenous envelope surrounding the starch granule or oil globule may be digested away, thus setting free the granulose and oil. This has been called "the starch-hydrating and fat-freeing action of the stomach."

The lactic-acid ferment, under favorable circumstances, is said to attack the saccharine elements, causing fermentation and the production of lactic acid. This fermentative process can occur only when there is a decreased flow or absence of the acid and peptic qualities of the gastric juice. This process of lactic-acid fermentation is now supposed to be the explanation of the presence of lactic acid in the gastric secretion, and of the former belief that it was the normal acid of the gastric juice. This formation of lactic acid is believed by some to be the origin of the superabundance of acid in the stomach in so-called acid dyspepsia, and that overacidity is not due to an abnormally large flow of the normal hydrochloric acid. In a few instances this is unquestionably true, but in by far the largest number of cases there is a hypersecretion or hyperacidity of the gastric juice, which is the true cause of acid dyspepsia. In acid dyspepsia which has resulted from lactic-acid fermentation, the eructation of acid fluid or gas does not come on immediately after taking the food, but is developed some time later, and is intensified by taking saccharine food. When due to hypersecretion of the normal acid the symptoms come on immediately, and in the absence of saccharine foods.

In regard to the fat-splitting ferment but little is known. The theory advanced, however, is that this ferment is generated by the stomach and acts upon a limited amount of fat, splitting it into its component parts—glycerin and fatty acids.

Crediting the stomach with the largest possible amount of work, we find that it has comparatively little to accomplish. It practically has no action upon the starch, sugars, or fats, and transforms only a portion of the nitrogenous elements into a complete peptone. Therefore, I have been led by these physiological studies, and by observation in a large number of clinical and pathological examinations, to believe that there are very few stomachs which are not fully capable of performing the necessary amount of work; that in the majority of instances of so-called dyspeptics the stomach is not at fault, and that one great reason why dyspeptics do not get well, is because treatment is entirely directed toward the stomach and away from the true seat of the malady.

ORIGINAL ARTICLES.

INFLAMMATION IN AND ABOUT THE HEAD OF THE COLON.[1]

BY L. S. McMURTRY, M.D.,

GYNECOLOGIST TO STS. MARY AND ELIZABETH HOSPITAL; FELLOW OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, ETC.; LOUISVILLE, KY.

INCIDENT to the remarkable advance in peritoneal surgery during recent times is an entire recasting of the pathology and treatment of deep-seated inflammations of the right iliac fossa. Our increase of knowledge regarding the origin and nature of these conditions has come from the ready access to the peritoneal contents, and particularly from the disclosures of that unequalled diagnostic resource, the exploratory incision.

The teachings in most systematic treatises on surgery and practical medicine upon inflammation and its results in and about the caput coli are not only practically worthless, but positively misleading. This is true not only in regard to pathology and treatment, but even in regard to the anatomy and relations of the cæcum and its appendix. The only literature of practical value upon this subject is scattered through the journals of the past three years, and, with the exception of the able papers of Sands, Hoffman, McBurney, and Weir, consists of a few reported cases. The frequency of the disease, the importance of its early recognition, together with my own recent experiences in its operative

[1] Read before the Southern Surgical and Gynecological Association, November 12, 1890.

treatment, have induced me to present this paper upon the subject.

Scarcely a decade has elapsed since so experienced a surgeon as the late Dr. H. B. Sands, of New York, announced, in a paper on this subject, that in the course of twenty years he had seen twenty-nine cases of appendicitis. During the past year many surgeons have met with a dozen or more cases, and the ability to recognize the disease and the resort to appropriate operative treatment are fast increasing. This great advance in our knowledge and resources is the direct result of the labors of American physicians and surgeons, the most notable contributions being from Sands, Weir, Fitz, Pepper, Morton, Hoffman, McBurney, Dennis, and Stimson.

It is now well known that inflammatory changes of the vermiform appendix are, in almost every case, the origin of the inflammatory diseases about the caput coli. Inflammation of the cæcum is very rare, yet the testimony of surgeons and pathologists is abundant that in a certain proportion of cases cæcitis, with perforation, occurs without involvement of the appendix. Regnier, in 1886, operated by abdominal section on a case presenting symptoms of intestinal obstruction with peritonitis. At the autopsy cæcitis, with perforation, was discovered.[1] Other cases have been reported, and verified by post-mortem examination. In 1888, I operated on a case of perforative cæcitis, and sutured two perforations in the cæcum. The patient recovered, and was present in the Section of Surgery of the American Medical Association in May, 1888. A full report of the operation can be found in the *Journal of the American Medical Association*, July 7, 1888. In this case I carefully examined the appendix, and found that it presented no indications of disease. Compared, however, with appendicitis, cæcitis is a very rare condition. McBurney estimates the relative frequency of cases of cæcitis and appendicitis as one to one hundred. I should place the proportion as much less, and believe it would be nearer the mark to say one to two hundred.

Fæcal impaction has been mentioned by surgical writers as a cause of inflammation about the head of the colon. Pain over the cæcum, with a fæcal mass perceptible on pressure, often occurs, but is rarely, if ever, associated with peritonitis. A few weeks since I saw a case with Dr. H. H. Grant, of Louisville, in which there was localized peritonitis in the right iliac fossa, with a well-defined, firm tumor. Abdominal section was done, and, instead of appendicitis, we found the disease to be cancer of the caput coli. Irrigation and drainage rescued the patient from the immediate danger of active peritonitis. The patient was a woman of middle age, and the engrafted peritonitis presented the symptoms of an acute condition. Malignant disease of the cæcum has not, so far as I am aware, been mentioned by writers upon this subject as a probable condition in the diagnosis of deep-seated inflammations of the right iliac fossa.

Practically speaking, however, localized peritonitis about the head of the colon is, with very rare exceptions, caused by inflammation of the vermiform appendix. Unlimited confusion in the study of this subject has been caused by the use of the terms peri-typhlitis and para-typhlitis, and intra-peritoneal and extra-peritoneal abscess. It has been taught that peri-cæcal inflammation may be of two distinct anatomical characters—that the cellular tissue around the cæcum may be inflamed and abscess result, without involving the peritoneum, and that in such cases the surgical treatment should consist in a dissection by which the peritoneum is pushed to one side and the abscess opened and evacuated. This is altogether misleading. In not a single case in which I have operated or seen others operate, was there a doubt that the pus was within the peritoneal envelope. This is the unqualified testimony of Weir, McBurney, and others, who have studied the subject from the standpoint of practical experience. Weir has shown, in an analysis of one hundred autopsies, that in not a single instance did the abscess originate in the extra-peritoneal tissue, and that in only four was pus found in the tissues. When an operation is done in the early or middle stage of the disease, there will be no doubt upon this point; but late operations, and operations in neglected cases, may show that pus has broken through the lateral or posterior layers of the peritoneum and forced itself along the intra-muscular spaces. Even this condition is very rare, and the greater part of the abscess is really intra-peritoneal. Moreover, Treves has demonstrated, by an elaborate series of dissections, that the cæcum and appendix are wholly within the peritoneal cavity.

When inflammation of the appendix and the attendant peritonitis occur, adhesions glue together the adjacent coils of intestine, and shut off the general peritoneal cavity. The same conservative process occurs in pyosalpinx. In each instance the diseased structures are intra-peritoneal, and in each instance the outlet may follow diverse directions, if left to itself. The operation for either condition is a veritable abdominal section. These anatomical and pathological facts have now been established beyond question, and the time has come to cease talking and writing about the cellular tissue covering the posterior surface of the cæcum, of cellulitis, of extra-peritoneal abscess, of para-typhlitis, and of operations in which uninflamed peritoneum is pushed away from the iliac fossa and

[1] Traitement Chirurgicale de la Peritonite, 1886, p. 57.

the posterior cellular space is opened and evacuated. These things do not exist or occur, and should be dismissed from future discussions of this subject.

Inflammation of the appendix varies in degree, from a simple catarrhal inflammation with infiltration of the submucous tissues, to perforation and complete gangrene of the organ. The course and progress of the inflammation may be acute, subacute, or chronic, giving rise to a clinical history characterized as fulminant, explosive, recurrent, mild, etc. The lesions likewise vary, and there may be found slight obstruction from thickening of the mucosa, stricture of one or more portions of the lumen of the appendix, adhesions to the cæcum and contiguous organs, a distended cyst holding an ounce or more of pus, or perforation and separation from the cæcum by sloughing.

The starting-point of the inflammatory process seems to be in the mucosa, but the exact nature and cause of the process are as yet undetermined. The appendix normally varies in size and conformation, and in many instances lesions have been attributed to congenital defects due to errors of development. It also varies much in length, as well as in its approximation to the external surface of the cæcum. Fæcal concretions and foreign bodies have been regarded as the causes of the inflammations, but the experience of Stimson and some others is opposed to such an explanation of the morbid process. Of twenty-one cases reported by Stimson, in only one was a fæcal concretion or a foreign body of sufficient size to have caused the inflammation found. In all, however, there was marked inflammation of the mucosa, which in some instances had destroyed its structure. Total or partial obliteration of the lumen was found in three cases, and in one the stricture was double. It is my belief that fæcal concretions, catarrhal inflammation, obstruction, and retention are the initial steps in inflammatory lesions of the appendix, to which the peritonitis known as that of contiguity is added.

The appendix is often found buried in and attached to a mass of inflammatory exudate which has become firm bands of false membrane. The signs of previous inflammatory attacks and chronic inflammation corresponding to the evolution of symptoms are often found. Ulceration and perforation, associated with suppurative peritonitis, are common lesions of the appendix. The lesions and their results are very similar to those of purulent salpingitis. The adjacent coils of intestine are agglutinated, shutting off the general abdominal cavity, and thus an abscess boundary is formed. The burrowing pus may pursue various and circuitous routes to an outlet. It may break down adhesions, extend its area, and excite a suppurative peritonitis involving the entire abdominal and pelvic cavities. It may perforate the parietal peritoneum and burrow along the cellular interspaces of the abdominal muscles. It may discharge through the loin, or through the scrotum, or perforate into the rectum, bladder, or pleural cavity. The abscess is always intra-peritoneal in its origin and seat, though it may discharge its contents at remote points.

The diagnosis of appendicitis, with any estimate of the extent and severity of the lesions, is not only exceedingly difficult, but, as a rule, impossible. In many autopsies evidences of appendicitis without extensive peritoneal involvement, and terminating in resolution, are observed. That such lesions are often mistaken for simple intestinal disturbances, or pass unnoticed, there can be no doubt. In many instances the attack is much more pronounced. It may be quite severe and characterized by pain, tenderness, swelling, and febrile action, and yet terminate in resolution and recovery. But the inflammation is very prone to recur and to terminate eventually in peritonitis and abscess. Dr. McBurney describes the case of a young lady, in which twelve attacks occurred in the course of little more than a year. She was relieved by removal of the appendix, which was swollen and inflamed.

In cases in which perforation most commonly occurs the history is different. The attack is sudden and the symptoms fulminant. This form of appendicitis is well illustrated by the following case upon which I operated in July last. I give the clinical history in the words of Dr. J. B. Kinnaird, of Lancaster, Ky., who attended the patient from the inception of the attack, and was present when I operated.

"Alice K., six years old, was attacked by pain in the abdomen, July 6, 1890. When I called she had had several small stools, and being informed by her mother that the child had been eating gooseberries, I considered it a case of cholera morbus, and prescribed a saline cathartic. The bowels acted, but on the following day she was not relieved, and continued to complain of pain. In the afternoon of this day she had a severe paroxysm of pain, referred to the ileo-cæcal region. On the morning of July 8th she seemed better. She had taken a small Dover's powder the night before and had rested well. In the afternoon of this day I found her lying on the lounge playing with her brother. She was bright and cheerful, but her temperature was 101° and pulse 140. On the following morning the abdomen was painful, especially about the ileo-cæcal region. I prescribed small doses of Dover's powder, and applied moist, warm applications. In the afternoon of this day there was tympanites, the legs were drawn up, features pinched, pulse rapid, temperature 103°, and vomiting occurred and continued. Dr. McMurtry was summoned from Louisville, and arrived during the night. Abdominal section was done on the following morning, July 10th, the fourth day of the illness."

On opening the abdomen by an incision along the outer border of the rectus muscle, several ounces of foul pus escaped. The intestines were matted together, but were readily separated, and the appendix found. I tied it off with silk and removed it. The abscess cavity was thoroughly irrigated and a rubber drainage-tube inserted. The little patient's pulse was rapid and feeble when she was put on the table. It did not improve after the operation, and she died ten hours subsequently.[1] The appendix was perforated in two places and contained a fæcal concretion.

This child was apparently in perfect health four days before her death, and the lesions shown in the specimen presumably occurred in that time. Her features were pinched, her belly tympanitic, pulse 150, temperature 103½°, tongue dry and furred, and condition extreme when the operation was done. She had general peritonitis.

This case is a powerful argument in favor of early operation when we view the lesions presented in the specimen.

A tumor of varying size can usually be made out in the early stage of appendicitis, but often this sign is not distinct until the patient is relaxed by an anæsthetic. The tumor is formed by infiltration and effusion about the cæcum, perhaps by pus, or by agglutination of the intestines.

Tympanites is a very inconstant symptom. Its presence or absence, or its degree, are of little value in determining the severity of the inflammation or extent of the lesions. Pain is a constant symptom, but often extends through the abdomen. Usually, however, a painful point can be detected on firm pressure immediately over the caput coli.

The patient assumes the dorsal decubitus, and, as a rule, draws up the right leg and retains it so.

The aspirator, as an exploring instrument, is unreliable and dangerous in inflammations deep in the right iliac fossa.

Rectal examination in the early stages of this disease is without value in the diagnosis, and is rarely of aid in any stage.

Rigidity of the abdominal muscles, more marked on the right side, is almost invariably present, and constitutes a valuable diagnostic sign.

A rapid pulse, varying degrees of fever, a chill, and vomiting are often present, but are so frequently absent as to be in themselves of no special significance.

When suppuration has occurred, rigors, sweats, and a dry, furred tongue are observed.

Perforation may occur without any special aggravation of the symptoms. In certain mild cases perforation or rupture may be accompanied by sudden aggravation of the symptoms; yet in other instances perforation has been found without any increase in the severity of the symptoms. From this it is apparent that no decision as to the propriety of operative interference can be based upon a diagnosis of perforation.

In order to illustrate the varying symptoms and sometimes protracted course presented by appendicitis, I will record here another case upon which I operated in September, 1890:

W. D. S., male, aged twenty-six years, was taken ill in June. He consulted a physician and received treatment. Diarrhœa came on, and he was confined to bed with pain in the bowels and fever, which were attributed to malaria. In July he travelled a short distance by rail to the Springs. Another physician then treated him for rectal disease by means of local applications. His troubles persisted and confined him to bed during the entire month of August. On September 1st I visited him at the Springs. He was emaciated, had frequent rigors, profuse sweats every night, a pulse over 100, and constantly elevated temperature. He was taking three grains of morphine daily. Pain and an oblong tumor in the right iliac fossa were present.

I performed abdominal section on September 6th, the incision being along the external border of the right rectus muscle. In opening the peritoneum, which was thickened and attached to the adjacent tissues, fully six ounces of putrid pus escaped. While irrigating the abscess cavity the sloughing appendix was washed out with the contents of the abscess. A double rubber drainage-tube was inserted, and frequent irrigation instituted. This was continued until the discharge ceased, which was at the end of nine days, when the tubes were removed. The patient's improvement was immediate and his recovery was complete.

This case, while illustrating remarkable tolerance and resistance of the peritoneum, is a distinct plea for operative interference.

Turning now to the treatment of inflammation of the appendix, the first and most important observation I would make, is that at the beginning of the attack we have no means whatever to determine whether the disease will pursue the course of the first case or that of the last case which I have reported in this paper. That is, we cannot foresee whether the patient will have general peritonitis, and be beyond rescue in three days, or whether, after a long illness with suppuration and destruction of the appendix, he can be restored to health. We cannot from any known symptoms foresee whether a case will be a simple catarrhal inflammation terminating in resolution, or a recurrent attack, or whether it will become an unprotected perforation, followed by immediate infection of the general peritoneum, and death. A recognition of this fact is of the utmost importance in deciding upon a plan of treatment. It gives to the so-called conservative plan, known as expectancy, an unseen peril which

[1] Dr. McMurtry exhibited the appendix to the members of the Association.

is generally wholly disregarded in the treatment of this condition.

So far as the use of palliative remedies is concerned, the treatment is limited to a few simple measures. A saline purgative, aided by an enema, in the early stage of the disease, will tend to reduce congestion, remove fæcal accumulations, and prepare for surgical interference. Opium obscures symptoms, arrests elimination, and is positively contra-indicated.

In view of the insidious nature of the disease, of its rapid progress, of its frequent recurrence, and of the early period in which apparently mild cases may assume a fatal character, operative treatment cannot justly be delayed. In a certain number of cases termination by resolution takes place in three or four days. When the symptoms are marked and the inflammation of high grade, lives will be lost by waiting even three days for spontaneous recovery. In the larger proportion of cases recovery will not occur by resolution, and they may at any moment assume a fatal character. In these cases abdominal section and removal of the appendix should be done as soon as the character of the disease is recognized. In connection with this, it is important to remember that the dangers of a recurrent attack are greater than those of a primary one.

The mortality of appendicitis, as heretofore recorded, is extremely severe. Fitz, who has recorded the largest number of cases, says: "Seventy-four per cent. recovered and twenty-six per cent. died. About one-half of these were treated medically and the other half surgically." This, of course, indicated that those treated surgically were operated upon late in the disease, which, we all know, means that the patients were practically moribund. The late operation has the enormous mortality of fifty per cent.

Every case of appendicitis passes through the great danger of an unprotected perforation before reaching the comparatively safe condition of abscess. The decision to operate should be determined more by the grade of the inflammation than by the time it has existed. When a diagnosis has been made, and three days have elapsed without diminished pulse-rate and temperature, operation should be done.

Finally, I would submit the following conclusions:

1. Inflammation about the caput coli is, as a rule, appendicitis.

2. A certain proportion of cases will recover spontaneously by resolution. With these, recurrence of the disease is common.

3. In the larger proportion of cases the disease endangers life, and may at any moment assume a practically hopeless condition.

4. Operation involves less danger than delay, and should be resorted to in all cases in which a high grade of inflammation is persistent.

5. The essentials of the operative technique are brief anæsthesia, quick and thorough work, removal of the appendix, irrigation, and drainage. The lateral incision is preferable to the median.

DISCUSSION.

In discussing this paper, DR. JOSEPH PRICE, of Philadelphia, agreed with the author upon the necessity of operating early in cases of appendicitis, and said that prompt evacuation of pus, wherever situated, is the only proper method of treatment. He then reported some illustrative cases which had occurred in his own practice.

DR. BEDFORD BROWN, of Alexander, Va., referred to a remarkable case of typhlitis that came under his care during the late war. The patient was a Confederate soldier, and was brought into the speaker's field-hospital, Richmond, in the summer of 1862. It was supposed that he had an abscess on the inner side of the knee-joint. He was greatly emaciated and had fever and night-sweats. The patient called attention to a swelling in the right iliac region, which was accompanied with pain and tenderness. Dr. Brown opened the abscess near the knee freely, and evacuated half a pint of pus. Mixed with the pus were grains of green corn, tomato seeds, small chicken bones, and blackberry seeds. A cæcal abscess had evidently formed, and the pus had escaped under Poupart's ligament through the femoral ring, followed in the course of the sartorius muscle, and finally accumulated on the inner side of the knee-joint. The fistulous opening was probed with a soft male catheter, and found to extend up to Poupart's ligament. Finally it closed, and the man recovered completely and resumed his duties as a soldier.

Dr. Brown's subsequent experience with typhlitis comprised only six or seven cases. Of these, all recovered under general treatment but one, and that one was finally operated on and died shortly after.

DR. G. FRANK LYDSTON, of Chicago, referred to the very great progress which has been made in recent years in the diagnosis and treatment of this class of affections. Dr. McMurtry had well said that inflammation of the cellular tissue is not the cause of the inflammatory affections which occur about the head of the colon. It might be said that the cellulitis which occurs in this region bears the same relation to the pathological foundation of the process that so-called, pelvic cellulitis, bears to pathological conditions affecting the uterine appendages, although a little more importance should be assigned to the part which the cellular tissue plays in the pathological conditions incident to appendicitis. There is no question, he thought, that in many cases inflammation of the extra-peritoneal cellular tissue—*i. e.*, Velpeau's membrane—has much to do with some of the peculiarities of perityphlitic abscesses. This is especially true in retro-cæcal abscess. He also differed from Dr. McMurtry in the opinion that the inflammation and abscess are always intra-peritoneal. Leaving out of consideration those recent anatomical dissections to which allusion was made, there is no question that in some instances the inflammation may agglutinate the

peritoneum about the appendix and perforate into the retro-peritoneal cellular tissue. This, Dr. Lydston thought, is the explanation of the slowness with which some abscesses in this location come to the surface. Instead of the induration being at once manifest, it may be several days or weeks before it can be detected; the abscess, meanwhile, burrows along the planes of cellular tissue in the iliac fossa to the ilio-lumbar region, and may appear at some distance from the head of the colon, or may gradually burrow outward toward the loin and both downward and upward in the direction of the groin until at one or more points it becomes perceptible to the touch. In a considerable experience with the conditions described by Dr. McMurtry, the speaker had observed several cases of this sort, and in one instance in which he operated he was confident that the process was extra-peritoneal and that the abscess had burrowed upward in the direction of the kidney, as well as downward into the iliac fossa.

Another point that must be considered, he said, is that if all these abscesses be regarded as primarily intra-peritoneal, the operator may lose sight of the fact that in some cases he can do what is practically an extra-peritoneal operation, for, as Dr. McMurtry admits, there is a barrier produced by adhesions between the collection of pus and the general abdominal cavity.

Dr. Lydston believed that some cases are due to inflammation which does not begin in the appendix, but in the colon proper; this inflammation may, he thought, extend to the cellular tissue outside of the colon, without there being necessarily any perforation. The same is true in cases in which the inflammation primarily or secondarily affects the appendix.

The question of the relation of foreign bodies to this process is quite definitely settled; the foreign body, however, is not necessarily of extraneous origin. Very frequently, as a consequence of constipation, catarrhal colitis is set up; this extends to the appendix, and there is slight swelling of the appendico-cæcal opening. Mucus collects in the appendix; a small amount of fæcal matter gets into the little tube during straining at stool, but fails to get out again, and forms, in combination with the mucus, a small fæcal stone. Sometimes this fæcal stone is formed in the cæcum, and is forced into the appendix. Oftener, however, it forms in the appendix proper. The concretion may set up inflammation in and about the appendix, or may perforate and in that way cause inflammation and suppuration. Sometimes the fæcal stone escapes into the pus and becomes dissolved. This, the speaker thought, is the explanation of those cases in which perforative ulceration of the appendix is found, and yet no foreign body is discernible in the pus-sac. Dr. Lydston believed that in every case in which perforation occurs there has been a foreign body of some kind.

In general, the causes of perityphlitis may be said to be (1) fæcal impaction in the colon; (2) fæcal stone; (3) extension of catarrhal colitis, with occlusion of the mouth of the appendix; (4) foreign bodies of extraneous origin; (5) traumatism. The latter may be disputed, but the speaker has seen one case in which traumatism seemed to be the cause. Many cases of appendicitis remain catarrhal.

The diagnosis of perityphlitic abscess is not always easy. He recalled one case in which he was ready to operate, the symptoms pointing to the presence of pus, and the fulness of the ileo-cæcal region and tenderness of that point seeming to warrant an operation. Operation was, however, refused, and the patient recovered after the passage of a large amount of fæces. Fitz reports a case of circumscribed peritonitis in the right iliac region diagnosed as appendicitis, which at the autopsy was proven to be abscess of the liver due to catarrhal colitis. In a second case, diagnosed appendicitis, the post-mortem examination disclosed a suppurating subperitoneal gland due to gonorrhœal infection. In a third case salpingitis was mistaken for appendicitis. In a case of his own there was appendicitis with a small abscess, but all of the symptoms which existed prior to the operation have since persisted, and are unquestionably due to spinal irritation.

The mortality-rate reported from operations for perityphlitic abscess should not guide us in the question of operating, as these cases are usually operated on very late. The results of surgical treatment depend a great deal on what is done. For example, the operation may be (1) extra-peritoneal; (2) intra-peritoneal; (3) the appendix may be resected; (4) the operation may be no more formidable than the lancing of an abscess.

A valuable point in diagnosis is the fact that when an abscess forms behind the cæcum and tends to burrow upward toward the kidney, there will be marked irritation of the psoas muscle with flexion of the thigh, crural neuralgia, and great pain on attempting to straighten the limb.

As for aspiration it can only be condemned. If pus has not formed the abscess does not need aspirating, and after it has formed aspiration does no good. It is dangerous and illogical.

Fæcal fistula occurred in one of his cases after operation, the procedure having been delayed too long. The fistula, however, healed within three weeks. The most important point in connection with perityphlitic inflammation is, in his opinion, that many children who are said to have idiopathic peritonitis have had, primarily, inflammation about the appendix. In children the inflammation extends to the sensitive peritoneum so rapidly that a fulminant peritonitis results and destroys the patient's life long before the period when, in the adult, suppuration and a distinct tumor would be observed. The speaker wished to put himself on record as denying the existence of idiopathic peritonitis in children; all the cases are due either to some disease of the bowels, of which appendicitis is one of the most frequent conditions, or to traumatism. As Dr. McMurtry suggests, operation should be the rule in perityphlitic inflammations. It is well to remember, however, that a proper selection of cases is necessary here as elsewhere. Not all cases require operation, but whenever pain, induration, rapid pulse, and high temperature tend to persist the operation should be done; also whenever the induration is marked it should be performed without delay.

DR. JOHN D. S. DAVIS, of Birmingham, Ala., could not agree with the essayist as to the cause of appendicitis. It is sometimes, though in rare instances, the result of concretions, of various kinds of seeds, etc.

The method of operating by ligating the appendix is a very hazardous procedure indeed, and the method

suggested by Dr. Price is the wisest course to pursue. The appendix should be amputated closely, pushed in, and then closed with Lembert sutures. We often find in this region that the inflammation has continued so long that the serous membrane is destroyed, and we will not have primary adhesion, even when it is closed, serosa to serosa, with Lembert sutures. Therefore, it is the best policy to amputate close to the cæcum, close the mucous coats with a continuous suture, then push the stump in and unite, serosa to serosa, by means of the interrupted suture.

DR. J. MCF. GASTON, of Atlanta, Ga., said that he first called the attention of the profession to appendicitis at the meeting of the American Medical Association in St. Louis. He has written papers on the subject since, but instead of referring to them he would briefly report the case of a physician which came under his observation recently, and which terminated fatally without having time to develop suppuration, but presented the symptoms of collapse, resulting from perforation. At the post-mortem examination the fact that there had been ulceration was verified. There seems to have been a cause which could not be discovered. The patient had been repeatedly eating grapes at his breakfast for some time, but unfortunately the undertaker injected a large quantity of fluid into the abdomen, which rendered it impossible to determine definitely the cause of death. There was evidently an opening at the most dependent portion of the appendix, but this looked as though it had previously existed and had been shut off by a circumscribed inflammation around it, which prevented the development of serious consequences. There was another ulceration or perforation near the attachment of the appendix to the cæcum, and it was evidently through this that the contents of the cæcum had discharged into the peritoneal cavity and led to the collapse.

In a large number of post-mortem examinations of the results of appendicitis, apart from this case, the speaker has not failed to recognize that perforation of the appendix, or inflammation without perforation, resulted from concretions in the appendix or from foreign bodies lodged in it.

He thought that the position taken by the author of the paper is not sustained by statistics. He agreed with Dr. Price that, in a large proportion of cases, the disease results from the presence of foreign bodies or concretions in the appendix, and he is convinced of the necessity for early operation in these cases.

In order that an operation should be successful it must be done early, and in all cases we should operate as soon as we suspect appendicitis.

A CASE OF INTESTINAL ANASTOMOSIS WITH CARTILAGE PLATES, FOR TRAUMATIC STRICTURE OF THE ILEUM—RECOVERY.[1]

BY M. STAMM, M.D.,
OF FREMONT, OHIO.

IN the evening of September 7, 1890, I received a telegram from Dr. Beardsley, of Ottawa, Putnam County, Ohio, worded: "Come immediately, prepared for abdominal work." I could not reach the doctor until noon of the next day, and on my arrival he gave me the following history:

"I was called on August 20th one and one-half miles east of Ottawa, to see a little son of Henry Agner, about seven years old, who had been run over by a loaded wagon. On my arrival I learned from the father, who was driving the vehicle, that his load consisted of gravel. The patient, with his brother, was upon the load playing, when the latter cried out: 'Mackey has fallen off and the hind wheel has run over him!' The father picked up the boy, who seemed not to be badly injured, and carried him to his own house, which was not more than two hundred rods away, and sent immediately for me.

"On inspection I could plainly see the mark of the wheel across the boy's body just below the umbilicus. There was paralysis of the lower extremities, but the boy did not complain of pain unless an attempt was made to move him. I applied a flannel bandage, well padded with cotton-wool, snugly around his body, but gave no medicine. On the next morning I found my patient quite cheerful, but having some pain. Ordered $\frac{1}{40}$ grain of morphine every hour until relieved. I saw him again on August 22d, and found him up and feeling well, as he expressed himself. On August 28th, he was suffering severely from disturbance of the bowels. His mother informed me that he had visited the grape arbor quite frequently during the last few days, and she suspected that he had overloaded his stomach with grapes which were not fully ripened. I prescribed a mild saline (Rochelle salt) but was sent for again on the same day and found that he had not retained the salt. I then prescribed an enema of table-salt and water, which brought away some feculent matter containing an abundance of grape-seeds. I did not visit him again until August 31st, when the pain became so severe that every breath was a moan. I also heard that no further movement of the bowels had occurred since the enema. I again prescribed Rochelle salt, but with the former results. By the use of morphine I was able to control the pain and make the boy somewhat comfortable until September 5th, up to which time there was no bloating of the abdomen, and flatus occasionally passed from his anus.

"From this time tympanites became very extensive, and morphine no longer controlled the pain. I now advised an operation, explaining the technique and endeavoring to make the parents fully understand the gravity of the procedure as well as the boy's present condition, but consent to operate was not given until September 7th."

When I saw the little patient in the afternoon of September 8th he presented tympanites to a high degree. There was no rise of temperature, his pulse was about 108 per minute, and he had vomited in the morning. As he was under the influence of morphine there was no pain on pressure. On examining the rectum I found it empty, and there were no signs of a tumor. Dr. Beardsley had

[1] Read before the Northwestern Ohio Medical Association, at Lima, Ohio, December 11, 1890.

explained to the family before my arrival the possibility of an injury to the bowels, of strangulation due to adhesive bands, or of a slit in the omentum, etc., with which I could only concur. I cannot let this pass without complimenting the doctor for the thoughtful manner in which he made the preparations necessary for an operation, so that in fact very little was left for me to do other than to proceed. I insert this compliment especially, because I think if every practitioner were imbued with the importance of an early operation in cases of obstruction of the bowels, instead of temporizing with all the different methods which are harmful because in many instances they injure the bowels and defer an operation too long—generally to the last stage—it would put surgeons in a position to report more successful cases than we have hitherto been able to do. Moreover, I think that in a number of cases collapse has been caused by the persistent efforts to move the bowels.

Operation.—An incision about three inches long was made below the umbilicus. The intestine was

FIG. 1.

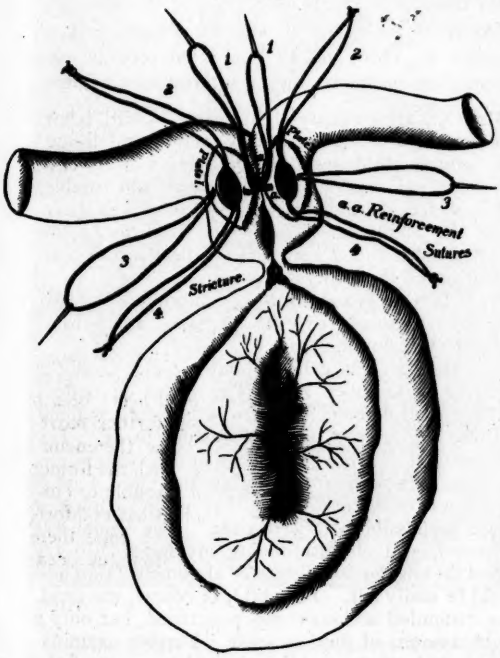
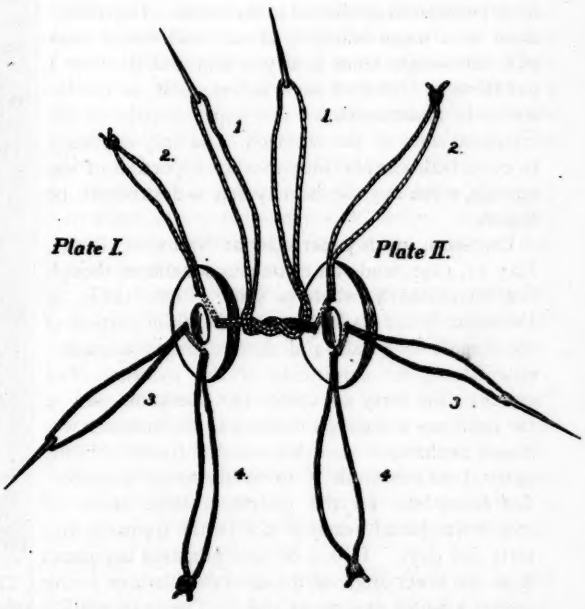


FIG. 2.



so distended that a portion several feet long forced itself through the wound and I had to puncture it in order to get at the seat of obstruction. As there was some bleeding from the puncture I closed it with two sutures. In groping for the cæcum I found an empty coil of the ileum, and, about ten inches from its insertion into the larger intestine, a double stricture revealed itself, of which the accompanying illustration (Fig. 1) may give an idea.

The mesentery of both segments had evidently been lacerated, and judging from appearances the outer coat of the ileum also was injured near its mesenteric attachment, so that the cicatricial contractions, combined with the agglutination of both mesenteries were sufficient to form a stricture which would hardly admit a small lead-pencil. I therefore decided upon intestinal anastomosis, without resection of the strictured coil, which was nearly twelve inches long. In order to prevent the escape of intestinal contents the bowels were compressed by means of elastic bands passed through the mesentery and fastened on the convex side of the intestine with small hæmostatic forceps. As one of the loops was not sufficiently emptied of its contents, probably owing to the fact that by handling the strictured coil some mucus and feculent particles were squeezed into the emptied coils, a small quantity of mucus and fæcal matter escaped on incision and somewhat soiled the field of operation. The soiled parts were immediately and thoroughly irrigated with warm water. After incisions about three-fourths of an inch long were made in the afferent and efferent coils, I introduced medium-sized plates armed with *black* and *white* threads in the manner that I demonstrated last year.[1] I also used five reinforcement sutures and after a second irrigation of the extruded parts I dropped them into the abdominal cavity.

With the exception of an abscess over the parotid region, which was opened by Dr. Beardsley on the eleventh day, the boy made such a rapid recovery that he was able to visit the county fair on October 2d. His bowels moved spontaneously on the third day after the operation. The plates were never

[1] THE MEDICAL NEWS, February 1, 1890.

found in the stools.[1] Judging by the amount of food which he consumes, there is little probability that the anastomosed opening will ever have a chance to contract.

A few words may be said in regard to the plates. Senn's bone-plates, when properly prepared, seem to answer the purposes in every respect, in point of coaptation as well as absorbability. Any modification of them could be made only in the direction of simplicity, as it is well known that their preparation requires an undue amount of work and time. All this, as I demonstrated before the Northwestern Ohio Medical Association last year, I have overcome by cutting my plates from the lower angle of the shoulder-blade of young cattle (not calves, as the latter would be too soft). This portion of the scapula is cartilaginous, and of sufficient firmness, and can be readily cut with a penknife, in fact the preparation requires only a few minutes. The fear that such plates would be too rapidly absorbed, as maintained by some experimenters, is, in my opinion, more the product of exuberant fancy than the result of careful experimental or clinical observation. I have kept them in a warm solution of salt and found them after forty-eight hours nearly as firm as at the time I put them in. Should such a fear exist, as for instance in anastomosis of the upper portion of the intestinal tract or the stomach, it is only necessary to cut a little deeper into the bony portion of the scapula, when any consistency that is desired will be found.

Dr. Senn, in his paper read at Nashville, Tenn., May 21, 1890, made an erroneous statement, though not intentionally, when he said: "Dr. Stamm, of Fremont, Ohio, made plates of the thin portion of the scapula of a calf, and used them in a gastro-enterostomy for carcinoma of the pylorus. The patient died forty days after the operation, and at the necropsy the plated inserted in the stomach was found unchanged in this viscus." I said:[1] "But, again, I do not think it necessary to use *undecalcified bone-plates* for the gastric portion, as in my case it was found nearly intact in the stomach after forty-five days. I have of late prepared my plates from the lower angle of the shoulder-blade of young cattle (a heifer two years old). They can readily be cut with a knife, and are ready for use in half an hour. . . . ." The fact is, that the thought of using cartilage plates suggested itself to me after I made my gastro-enterostomy; for that particular case I used for the stomach a *slightly decalcified bone* from the tibia of an ox. As I have demonstrated before, I also deviate from Dr. Senn's way of arming the plates: his *lockstitch* seems to me a complicated one, and has not the slightest advantage over my method. I do not drill any holes for the threads in my plates, as they can be readily transfixed by the threaded needle. The use of black and white thread has also materially lessened confusion in tying the knots, a thing which will, no doubt, be appreciated by those who have so far used threads of but one color. The only point to be observed is (see Fig. 2) that the white thread should, for instance, transfix plate No. 1 on the right side and plate No. 2 on the left side, and then be tied in their respective order, as shown by the numbers.

[1] The boy was present at the meeting and was a picture of perfect health.

[2] THE MEDICAL NEWS, February 1, 1890.

A CASE IN WHICH CYSTIC DEGENERATION OF THE KIDNEYS OF A FŒTUS PREVENTED DELIVERY.

BY M. HOWARD FUSSELL, M.D.,
CHIEF OF THE MEDICAL DISPENSARY OF THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

MY friend, Dr. A. H. Mellersh, of Roxborough, called me to see a case of labor on the morning of October 22, 1890, and to him I am indebted for the privilege of describing this interesting specimen.

Mrs. X., aged twenty-eight years. Third labor. Her first child was born healthy and is still living. The second child was born eighteen months ago. The head and shoulders were born without trouble, but considerable difficulty was experienced in delivering the abdomen. The child lived for a few minutes only, and a certificate of death from malformation of the kidneys was given.

The last pregnancy was not attended by any special symptoms, except, perhaps, an unusual amount of abdominal pain.

Dr. Mellersh was called about 4 o'clock on the morning of October 22d. The vertex presented, and the head descended and was delivered without trouble, but further progress was not made. The doctor then delivered the arms and made forcible traction, but without delivering the child. At 6 A.M. I was called and found that as much traction as was permissible had been made. The woman was etherized, and on introducing my hand into the uterus the enormously distended abdomen of the child could be easily felt. The child, of course, was dead. The distended abdomen was punctured, but only a slight amount of fluid escaped. Further examination made it certain that the enlargement of the abdomen was due to a solid tumor, or rather what felt like a number of tumors.

The opening was at once enlarged and the child partially eviscerated. The liver and intestines came away first. One of the tumors was then grasped, traction made, and the infant easily delivered. The mechanism was, doubtless, that one tumor was pulled ahead of the other, thus at once diminishing the girth of the child's abdomen and permitting delivery.

The infant was a rather large male. The abdo-

men was much enlarged, and measured eighteen inches in circumference at umbilicus.

On examination the following conditions are seen: Both kidneys enormously enlarged; the left measuring six by five inches, the right five by four inches. Both still have their original form, are lobulated, and are the seat of cystic degeneration. The mass is composed of a multitude of small cysts, varying from the size of a pea to that of a pin-point.

On section the cysts are seen to be filled with a clear fluid resembling urine. The left kidney is connected with the lower part of the abdomen by strong bands, which are apparently folds of the peritoneum and not adhesions. The hilum is near the lower end.

The ureters are plainly seen as small white cords, running over the lower end of the kidneys, and leading into the empty, contracted, elongated bladder. They are patulous. The pelves are buried in the mass of cysts. The bloodvessel supply is normal. The suprarenal capsules are enlarged. The heart is much hypertrophied, is about three times the normal size, and feels like a solid mass of flesh. The ventricles are small. The walls of the left ventricle are five-eighths of an inch thick, those of the right three-eighths of an inch thick. The valves are normal, but from the great thickness of the ventricular walls one would suppose that they were practically useless. The right testicle is in the abdomen, the left is in the abdominal ring. There were no other abnormalities noted.

The mother made a good recovery.

Congenital cystic degeneration of the kidneys is a well-known lesion, and has been the subject of numberless essays. Although infants with this condition are stillborn or die soon after birth, what is apparently the same condition has been found in adults.

Frequently the degeneration is connected with various other malformations, such as hydrocephalus, malformation of the genitals, etc.

The same woman has been known to give birth to several children with cystic degeneration of the kidneys.

In 1845 Virchow[1] carefully examined a case and expressed the opinion that the original seat of the cyst-formation is in the uriniferous tubules or in the Malpighian capsule, and that during the progress of the disease these cysts may lose their connection with the tubule from which they started. He believes that the original occlusion is frequently due to infarcts of uric acid salts, although it may be due to an inflammation starting in the pyramids. From the fact that the same woman may give birth to successive children with this abnormality, he thinks that the uric-acid diathesis in the mother may be the original cause of the trouble in the child.

Virchow's explanation of the process is accepted by most of the pathologists of to-day, although I think they repudiate the idea of the uric acid diathesis as a cause.

The normal kidney-substance is more or less destroyed in all cases, but in most there can be found here and there areas of comparatively normal kidney-substance.

Uhde[2] gives the notes of a case in which some of the glomeruli were normal, some were filled with yellowish epithelium, and some were entirely cystic. The cysts were lined with the epithelium common to the normal capsule. This case, to my mind, is convincing as to the capsules or tubules being the original seat of the cysts.

Though congenital cystic degeneration of the kidneys is so well known pathologically, it is extremely rare as a cause of dystocia. Most of the writers on the subject mention malformation of the kidneys as a possible, but rare, cause of dystocia.

In a rather careful search of the literature I have been able to find but eleven cases in which the kidneys were sufficiently large to impede labor, and only one case in which mutilation of the child was necessary. Doubtless other cases exist, but I have been

[1] Gesammelt Abhandlungen, p. 870.

[2] Monatsschrift für Geburtsheilkünde, 1856.

unable to find them. It will be interesting to cite a few of these cases.

Bruckner[1] cites the case of a woman who at two different labors gave birth to children with cystic kidneys. Both children were malformed in other respects. One of the children was dismembered in order to effect delivery.

Duffry:[2] Third pregnancy; breech presentation, cystic kidneys; hydrocephalic monster, with malformed hands and feet.

Siebold:[3] Child was also hydrocephalic; much difficulty in the delivery.

Carmack:[4] Child born at term; cystic degeneration of both kidneys. Much difficulty in delivery.

Oesterlen[5] gives the history of a case and a picture of the child with the kidneys in position.

There is an excellent bibliography of the subject in the *Dictionnaire des Sciences Méd.*, vol. iii., 3d series, page 294.

My case is the first of the kind presented to the Philadelphia Pathological Society. It differs from most of the reported cases in being, apart from the kidneys and associated lesions, a perfectly normal child.

The hypertrophy of the heart in this case is either unusual or, in other cases, has escaped notice, for in none of the reports do I find it mentioned. In some of the reports the heart is said to be normal, in others it is not specially mentioned. There seems to me to be every reason for hypertrophy of the heart in such cases, for although the heart of the fœtus is only secondary in supplying blood to the different parts, its work must be many times increased by the great resistance offered to the circulation not only in the kidneys themselves, but in the whole abdomen and chest, owing to the pressure of the greatly-enlarged kidneys.

It is interesting to note that in my case the hypertrophy is not limited to the left side of the heart, but is almost equally great on the right side. This would be expected, inasmuch as the right side is directly connected through the conus arteriosus with the general circulation, and hence must be affected by any undue pressure in that circulation.

The practical lesson of this case is: When difficulty is experienced in delivering the abdomen of a child, at once anæsthetize the woman, introduce the hand into the uterus and find the cause of the detention. If the child's abdomen is enlarged, and traction has been made, at once puncture the abdomen. In this case the instrument used was an ordinary pair of shears. An opening was made in the chest, my hand introduced into the abdomen of the child, and the operation continued as described.

I cannot imagine why an obstetrician should pull at the child for ten hours, as was done in one of Bruckner's cases, in which dismemberment was finally necessary, when evisceration is so easily and speedily performed.

[1] Virchow's Archiv, xlvi. p. 503.
[2] Medical Times, 1866.
[3] Monatsschrift für Geburtsheilkünde, 1854.
[4] Lancet, 1845.
[5] Zeitschrift für Geburtsheilkünde, viii. p. 384.

SCIATICA, NEURALGIA, OR NEURITIS?

BY L. HARRISON METTLER, A.M., M.D.
OF PHILADELPHIA.

While an indefinite terminology has frequently served as a convenient cloak for human ignorance, it has always more or less retarded the progress of scientific knowledge. Such names as gastralgia, myalgia, neuralgia, essential paralysis, consumption, and locomotor ataxia, may be very comforting to employ in certain obscure cases, but their careless and indiscriminate application to well-recognized symptom-groups and pathological states is an unwarrantable looseness in the use of language, and seems much like a confession of ignorance or of indolence. Not infrequently the use of such general terms becomes so soothing to one's conscience that all further effort toward a more accurate study of the case in hand grows irksome and seemingly unnecessary. Many cases of gastric ulcer and cancer have doubtless been neglected, at least in their incipiency, with the easy explanation that they were merely unaccountable gastralgias. There was no question as to the presence of the pain, and since science permits the use of the term gastralgia, it was employed, both for the sake of convenience and for its own peculiar scientific ring. The early pains of posterior spinal sclerosis have been notoriously mistaken for the pains of rheumatism; and as rheumatism has grown to be such a convenient name for all sorts of indescribable aches, acute and chronic, nothing is easier than to look wise and pronounce the pain rheumatic. Who knows how many years our knowledge of acute anterior poliomyelitis has been delayed by the high authoritative support which the name "essential paralysis of childhood" received when the disease was first described!

Neuralgia and neuritis are almost constantly being confounded with each other, and though many cases of so-called neuralgia are plainly instances of neuritis, it is much more convenient, in the hurry of general practice, to call cases of painful nerves by the undeniable but meaningless name of neuralgia than it is to study the electrical reactions and other symptoms characteristic of neuritis. Dana[1] found, after a close study of the subject, that true idiopathic neuralgia was a rare disease, constituting not more

[1] New York Medical Journal, 1887.

than two or three per cent. of the different forms of nervous disorders. Symptomatic and reflex neuralgias were far more common. These statistics confirm those of Classin, of Kiel, who collected 434 cases. And yet how many cases in general practice we hear of being diagnosed and treated as idiopathic neuralgia! This lack of careful study has retarded not a little our knowledge of the inflammation of nerves. Obviously here is a strong argument in favor of "specialties." The general practitioner may have frequent opportunities and, at times, superior ability for the study of these special diseases, but rarely does his inclination or time allow him to improve his opportunity or exercise his special ability.

In no single affection is the truth of the foregoing remarks more clearly illustrated than in that which is commonly described under the head of sciatica. It may be rash to dogmatize in regard to a disease which affords so few opportunities for post-mortem examination; nevertheless the majority of the supposed neuralgias of the sciatic nerve are beginning to be recognized as undoubted cases of sciatic neuritis. Both the symptomatology and the therapeutical results indicate such a condition. There have been considerable confusion and self-contradiction among the authorities upon sciatic neuralgia. Thus Flint declares that the affection ranks in frequency with facial and intercostal neuralgia, and that in the great majority of cases it is a functional affection. Then after giving a clinical picture of the disease which would serve as an admirable description of sciatic neuritis, he says, "sciatic neuralgia, rarely, as compared especially with facial neuralgia, exemplifies, in the recurrence of paroxysms, the law of periodicity." He describes the pain as always of a constant, boring character, unlike the ordinary, sharp, shooting pains of other neuralgias. He and many other writers whom I have consulted on this point, advance as an important symptom of sciatica the fact that the pain follows the course of the nerve and that the patient can thereby trace its anatomical situation; yet this is almost a pathognomonic sign of neuritis.

The etiology of sciatica is remarkably like that of neuritis and unlike that of the other neuralgias. Note a few of the causes of sciatica recorded in one of the recent text-books upon nervous diseases: Traumatism, exposure, gout, rheumatism, syphilis, and malaria. Lawson says that nine-tenths of the cases of sciatica are due to exposure to cold; while Erb insists upon the preëminence of this above all other causes. Not only are these found to be the most common etiological factors in decided cases of neuritis, but it is hard to understand in the light of our present knowledge of the nervous system how such factors can give rise to any other condition than that of inflammation. Surely it is a high degree of ultra-conservatism to admit that direct injuries, exposure to cold and poisoned states of the blood may and do give rise to inflammations in the brain, spinal cord, and other organs of the body, while in the nerves they produce only that kind of change of nutrition which is involved in the idea of neuralgia. It is a significant fact, when considered in this connection, that heredity and predisposition are of less importance in the etiology of sciatica than in neuralgia of the other nerves. Therefore, had not a single post-mortem examination of a painful sciatic nerve been made, the close similarity between neuritis and so-called sciatica in their etiology alone would incline us to believe that the latter is really a condition of inflammation.

In passing, it is interesting to note that Quenu[1] found in persons suffering from varicose veins, the veins in the interior of the sciatic nerves greatly dilated. Out of sixty-seven individuals with varicose veins, eleven were the victims of sciatica. A private case now under my care is that of a strong German woman, fifty-two years of age, with varicose veins of the right leg, who suffers at rare intervals with slight attacks of pain along the course of the corresponding sciatic nerve. An elastic stocking and the internal administration of hamamelis are affording her marked relief.

A comparison of the symptoms of sciatica with those of neuritis confirms still more forcibly the inflammatory origin of the former. It is oftener the rule than the exception for the inflammatory process in neuritis to be more intense at certain spots in the course of the nerve; indeed a large number of these cases might well be called *focal* neuritis, on account of the higher degree of inflammation at these points or *foci*. The pain, which is equally sharp if not sharper, in acute neuritis than in idiopathic neuralgia, which is almost as sudden in its onset, and at times quite as intermittent, is always most severe at these foci. What, therefore, are these tender points of neuritis but the long-recognized *puncta dolorosa* of neuralgia? Even in a general diffuse neuritis, the nerve is extremely sensitive and if it be pressed where it approaches certain bony prominences, the pain will be felt most keenly at those localities. In sciatica the puncta dolorosa are usually described as being situated in the neighborhood of bony prominences. According to Valleix, who first drew attention to them, these points correspond to the posterior superior spine of the ilium, the spine of the ischium where the nerve escapes from the pelvic cavity, the great trochanter of the femur behind which the nerve runs near the border of the gluteus maximus, the head of the fibula, the internal malleolus and

[1] La Semaine Medicale, 1888.

the dorsum of the foot. It is unnecessary to insist that at these points the nerve gives off large and important branches, for this only mystifies still more the explanation of the pain at these localities; furthermore, the explanation, whatever it be, will not apply to those inconstant points which sometimes appear at the middle of the thigh and in the calf of the leg. Pressure caused by the products of inflammation is a much more rational and physiological explanation of so common a phenomenon.

In neuritis it is easy to explain the tenderness of the nerve-trunk by means of the inflammatory irritation and pressure upon the nervi nervorum, but in neuralgia, in which there is supposed to be no perceptible lesion of the nerve-trunk, it is difficult to comprehend how such exquisite local pain can originate. Physiologists tell us that a nerve-fibre is sensory or motor according to its termination in sensory or motor organs. If, for instance, it is attached at its distal extremity to the tactile corpuscles of Meissner, the Pacinian bodies or other sensory-end organs, while at its proximal extremity it is associated with the sensory cells of the cortex, it is a sensory nerve. If, on the other hand, it begins in the large motor cells of the cerebral cortex or anterior horns of the cord and terminates in the motor end-plates of the muscular tissues, it is a motor nerve. Without these aids it is absolutely impossible to distinguish motor from sensory nerves, for in histological structure they are identical. A simple nerve-fibre, when separated from its end-organs, has no power to distinguish motor from sensory impulses. It is a question whether nerve-fibre can even perceive a sensory or motor impression unless that impression be received and evolved by a special end-organ. While the nerve-fibre is thus in itself entirely insensible, the nervi nervorum ramifying in its sheath cause it to appear extremely sensitive. These nervi nervorum have been demonstrated in the sheath of the optic nerve by Sappey and in other nerves by Horsley.

According to Magendie, Arloing and Tripier, most nerves receive recurrent fibres from adjacent nerves; these probably end in the nerve-sheath also, and being of different lengths may give rise to pain at different points in the course of the nerve-trunk. At all events, the fact remains as stated in the last edition of Kirke's *Physiology*:

"Nerve-fibres are stimulated to act by anything which, with sufficient suddenness, increases their irritability, but they are incapable of originating of themselves the condition necessary for the manifestation of their own energy. The stimulus produces its effect upon the termination of the nerve stimulated, being conducted to it by the nerve-fibre. The effect of the stimulus upon a nerve, therefore, depends upon the nature of its end-organ."

This is proved by the following experiment:

"A length of a nerve-trunk, when freshly removed from the body, if stimulated midway between its extremities, will, as shown by the deflection of a needle of the galvanometer at either end, conduct the electrical impressions in either direction and it may be considered therefore only an accidental circumstance, as it were, whether when *in situ* it has conducted impressions to the central nervous system from the periphery or from the central nervous system to the muscles or other tissues."

In neuralgia there is no change in the nerve-trunk so far as modern pathology can discover, so the nervi nervorum are not directly affected. There are no sensory cells along the course of the nerve to receive painful impressions and transmit them directly to the brain. Yet neuralgia is one of the most painful of all affections, and the pain, as in sciatica, is even more intolerable in the nerve-trunk than at its peripheral extremity. Those who deny the inflammatory character of these painful sciaticas have no easy task before them to explain the immediate cause of the pain. In opposition to all the teachings of physiology, they must show how an inert nerve-fibre, capable merely of transmitting centrifugally or centripetally the impressions which it receives, can, when unaffected by any perceptible source of irritation within or outside of its own substance, give rise to the most excruciating agony. Does it not seem singular that this mysterious agent can thus arouse to the highest degree the function of sensory nerves, and yet not affect the motor nerves? The motor nerves are like sensory nerves; yet *motor* spasm, pure and simple, is not a symptom of neuralgia.

The only way out of the dilemma, it seems to me, is to adopt the view that makes neuralgia a central disease, a kind of Jacksonian epilepsy, if I may be permitted the phrase, limited to the sensory areas of the cortex. The hypothesis, however, will be hard to maintain in conjunction with the many other symptoms of sciatica, of which I will speak later on.

In typical neuritis there are associated with the pain along the course of the nerve-trunk, peculiar sensations, paræsthesiæ, and various degrees of motor paralysis in the parts supplied by the nerve and its branches. The combination of these two sets of symptoms, pain in the course of the nerve and various spontaneous motor and sensory phenomena at its distal extremity, is almost pathognomonic of an inflamed nerve. Pressure upon the nervi nervorum and the recurrent fibres sufficiently explains the former, while interference with the power of conduction in the inflamed nerve-trunk itself readily accounts for the latter. Yet the books assert that in simple neuralgia of the sciatic nerve there occur various paræsthesiæ, tonic and clonic spasms in the leg, and even considerable degrees of paralysis; in other words, when the nerve is apparently

unchanged histologically, it is affected functionally in such a mysterious manner as to give rise to paralysis and symptoms of irritation at the same time. The argument itself is a *reductio ad absurdum*. The nerve, it is asserted, is so sensitive that the affection itself is worthy of the dignity of the special name, neuralgia; while at the same time the nerve is so dead as to fail in the proper conduction of received impressions. Usually, irritation is the cause of muscular spasm; here, however, irritation is made more frequently to accompany paralysis. There is a conflict here between physiology and pathology which those who insist upon the non-inflammatory character of sciatica will do well to explain.

Again, it is written that inflammatory symptoms are wanting in idiopathic neuralgia; but in typical cases of subacute and chronic neuritis there are scarcely ever marked signs of active inflammation. Indeed, so insidious are the changes in certain forms of neuritis, that some have been led to doubt whether the condition is one of inflammation and not one of degeneration—a pathological process to which the nervous tissue is everywhere particularly liable.

Many authorities assert that at the height of a paroxysm of sciatica there are vomiting, anorexia, mild fever, constipation, high-colored saccharine urine, and delirium. They reason that these symptoms are the results of the general irritation caused by the intolerable pain. Mental irritation has, doubtless, a great deal to do with them, but it looks very much as though some of the symptoms, such as the pyrexia, constipation, and high-colored urine were due to an inflammatory process. It is no argument in favor of the neuralgic character of sciatica to say that febrile symptoms are usually absent, and the health but little impaired; for in nearly all cases of subacute and chronic interstitial neuritis there is little or no fever, and but slight, if any, impairment of the general health.

Most writers on the subject assert that wasting of the muscles in sciatica is due simply to their inactivity. Fagge notes that Anstie found the faradic excitability of the gastrocnemius much diminished in one case, and then justly observes, without apparently seeing the full force of his own observation, that "it is a mistake to suppose, with some writers, that the loss of power depends merely upon disuse of the muscles." So decided a symptom would have led almost any neurologist of the present day to infer an organic lesion of the nerve or the central origin of the disease, whether of the degenerative or inflammatory type, and the existence of such a lesion would have removed the disease from among the true neuralgias.

In neuritis the electrical reactions, myotatic phenomena, and trophic symptoms are the most positive and easily explained signs of the disease. The gradual destruction of the nerve must obviously result in a loss of reflex action, because of the break that is thus produced in the reflex arc. Various trophic disturbances, such as muscular atrophy, herpes, excessive perspiration, and effusions into the joints, are caused by the separation of the trophic and vasomotor centres of the cord from the parts innervated by the affected nerve. The explanation of the electrical phenomena, namely, diminution of faradic and increase of galvanic irritability, rests more upon theoretical grounds than does the explanation of most of the trophic symptoms; nevertheless, the fact that the reaction of degeneration is one of the most reliable evidences of the destruction of nerve-fibres remains still uncontested.

How are we to explain the formidable array of trophic symptoms attributed in most of the text-books to sciatic neuralgia, a disease in which it is not supposed that there are any histological changes, but only a functional change? Indeed, it seems easier to believe, as some have already been inclined to do, notably Vulpian, Anstie, Clifford Allbutt, and Vanlair, that neuralgia is often not a disease of the nerve itself, though localized in the nerve, but rather an affection of the central nerve-cells. It is certainly more rational to believe this than that a mere bundle of motor and sensory fibres which physiology teaches us are alike, can, without any other lesion than a mere perversion of function, give rise to a host of trophic symptoms of the most varied kind.

In simple neuritis posture is at times almost as pathognomonic as is pain upon movement. In true neuralgia posture usually affords no more relief than does simple movement cause increased pain. The faulty attitude of the body in sciatica is an old and well-recognized symptom. Sometimes the patient leans toward the painful side, sometimes away from it, but always in a direction to modify the intensity of the pain. Babinski[1] has presented some admirable illustrations of this posture-symptom in sciatica. In the latter disease the inclination of the body is toward the healthy side, while the foot of the affected limb rests flat upon the ground. By this manœuvre the nerve is probably lifted away from certain prominences in the pelvis against which it usually lies, but it is difficult to offer a completely satisfactory explanation in view of the two cases reported by Bouchard, in which the inclination of the body was toward the painful side. At all events, the fact remains that the assumption of posture is more strongly indicative of neuritis than of simple neuralgia.

Neuralgia of other nerves develops under very different conditions from those under which neural-

[1] Archives de Neurologie, January, 1888.

gia of the sciatic usually occurs. Furthermore, in true neuralgia the pain is spontaneous, generally sharp from the onset, and is felt at other times in other nerves. The victims of true idiopathic neuralgia of the sciatic nerve are apt to have at times migraine, neuralgia of some of the cranial nerves and of the viscera. These neuralgic attacks are remarkably disposed to become periodic. The majority of the cases of sciatica, however, occur after some cause or under some condition of the general health that is liable to give rise to inflammation.

If the pain of sciatica is transferred to any other part of the body, it is usually to the corresponding nerve of the opposite side. This one of the peculiarities of neuritis, and is probably due to a central irritation at the point where the two nerves approximate each other both anatomically and functionally. Headaches and visceral pains are very infrequent in patients suffering from sciatica if the disease is primary and not due to a mechanical cause, such as a tumor, constipation, or pregnancy.

In the treatment of sciatica so many different plans have been tried and the average results have been so unsatisfactory that one would almost be inclined to imagine that the disease is incurable or that its nature is not clearly recognized. Subacute and chronic neuritis are proverbially hard to cure. In the management of sciatica the methods that afford the greatest success are not only different in many respects from those employed in the treatment of other neuralgias, but they are identical with those that prove most efficacious in the management of inflammation. Counter-irritation and the actual cautery, the internal administration of vasomotor sedatives, and the free use of cathartics, diuretics, and diaphoretics act more favorably in sciatica than in neuralgia of the other nerves. Narcotics and sensory depressants relieve the pains of sciatica as they do all other kinds of pains, and for that reason are commendable; but they do not cure the disease so frequently as they do idiopathic neuralgias of the cranial and intercostal nerves.

According to Pliny,[1] the victims of sciatica in his day had their pains mitigated by the soft tones of the flute. From this ancient musical method to the modern hypnotic is not so wide a leap as would at first appear. It is a well-observed fact that pain may become a habit which often needs only moral and mental treatment for its relief. It is then like certain forms of habit-chorea. The pains of sciatica are experienced because the patient retains a vivid recollection of a past attack and fears a repetition of the same. In such cases, and they are usually long-standing ones, electricity, baths, moderate exercise, general hygienic and mental treatment will do much toward effecting a cure.

But these cases are not the majority. The larger number of sciaticas seem to be benefited by therapeutic measures which rational medicine would naturally suggest were the disease recognized as inflammatory. Drugs which control the inflammatory process as well as paralyze the sensibility, like antipyrine, aconite, and belladonna, are found to be the most useful in sciatica, while simple alteratives and nerve anodynes, such as the chloride of ammonium, menthol, arsenic, and iron, give the best results in the prolonged treatment of cranial neuralgias.

Nerve-stretching is sometimes a most gratifying therapeutic resource. In old cases of neuritis it doubtless acts by breaking up adhesions and restoring the circulation; in simple neuralgia, however, in which there are no perceptible organic lesions, it is difficult to explain its *modus medendi*.

When we thus consider the causes, symptoms, and therapeutics of sciatica, and compare them with the causes, symptoms, and therapeutics of neuritis, we are almost compelled to believe that the former is only a variety of the latter affection. When in so many respects two diseases are so similar, and when nothing is known of the pathology of one while the pathology of the other is a perfectly familiar picture, it is safe to conclude that, with possibly the rarest exceptions, the pathology is the same in each. It is easier to prove a rational hypothesis than one which is based on nothing better than imagination. We are totally ignorant of the pathology of neuralgia, and up to the present time all explanations in regard to it have been but little better than guesses. We do know a great deal, however, about the pathology of neuritis, and also how the disease gives rise to the particular set of symptoms which usually accompany this affection. The broad meaning of the term neuralgia—covering, as it does, so many different conditions, of which pain alone is the preeminent symptom—hinders not a little that close scientific accuracy which is so desirable in nosology and so necessary to the continued progress of knowledge. For the present, at least, we may assert that all appearances warrant the advanced conclusion that sciatica is usually a neuritis of the sciatic nerve. If this assumption be not true its error will be more quickly discovered, than if all sorts of painful conditions of the sciatic nerve are regarded as neuralgias of which there is no pathology known to modern medicine.

1938 NORTH BROAD STREET, PHILADELPHIA.

[1] Hist. Nat., lib. xxviii.

DR. L. WEBSTER FOX has just been appointed ophthalmic expert to the Board of Pension Examiners of the Philadelphia district.

CASES OF VERTEBRAL DISEASE AND OF FIBROID AND CYSTIC TUMORS.[1]

BY W. M. HARSHA, M.D.,
OF CHICAGO, ILL.

Two cases of vertebral disease.—The first two cases which I wish to report are so nearly alike that they may for the most part be considered together. They are cases of vertebral disease, supposed to be of tubercular character. Both are males, aged twenty-seven and twenty-eight years, respectively, of tubercular family history and lymphatic temperament. Each contracted the disease while occupied at office-work, one sitting at a desk in a strained position, the other standing at a high desk in a post-office. In each case the disease had existed for some months before the patients came to Chicago for treatment, and each had been treated for rheumatism, lumbago and kindred troubles.

The first case had a history of periostitis of the tibia, with exfoliation of the bone, probably tubercular, ten years before. When he came under the care of my associate, Dr. Stillians, and myself, the patient's temperature varied from normal to 101°. He had stiffness of the back in the lumbar region, and some pain radiating from this region to the lower part of the abdomen and front of the thighs. There was tenderness over the spinous processes of the upper lumbar vertebræ on percussion or pressure. Irritability of the bladder was another symptom, micturition occurring with more than usual frequency. There was difficulty in stooping and in going down stairs, the patient partly supporting himself by the railing. He also supported himself while in a sitting posture, by pressing on the thighs and hips with his hands. All the symptoms were aggravated by exercise, and there was difficulty in lying in any position other than on the back. There was no deformity, although slight induration could be detected along the sides of the spinous processes. Owing to the direction of the normal curve at this point, the convexity being anterior, we should expect less deformity than in similar disease of the dorsal vertebra; and in adults degeneration of bone takes place more slowly than in children, in whom this disease is most frequently encountered.

A diagnosis of vertebral disease was made by Dr. Stillians and myself, after repeated examinations. Professor William E. Quine, of the College of Physicians and Surgeons, and Professor Daniel R. Brower, of Rush Medical College, were afterward consultants in the case, and the diagnosis was confirmed, although there was some discussion as to the presence of a chronic inflammation of the meninges of the cord at this point, instead of vertebral disease. The differentiation from rheumatism was based on the long duration without the occurrence of other rheumatic symptoms, and on the strictly localized tenderness; and the diagnosis was further corroborated by the family history and previous periostitis.

The treatment was what any surgeon would have adopted, namely, rest, alteratives, tonics, and counter-irritants. The means adopted to procure absolute mechanical rest in this case was recumbency in bed. The patient was very anxious to recover, and gave us intelligent coöperation. Improvement in the symptoms, though not rapid, was appreciable within a few weeks. The fever subsided first, the irritability of the bladder yielding more slowly. The patient continued to have a good appetite, and increased in weight; the tenderness over the spine gradually diminished, and the pains about the lower part of the abdomen and thighs disappeared. After four months in bed, the patient was allowed to walk about with the aid of crutches and a corset-brace. The brace was of a kind in frequent use in cases of vertebral disease, consisting of a firm, well-padded waistband of steel, two steel supports fitted to the curve of the back, with attached shoulder-straps to counteract the tendency to inclination forward, and two side-stays made adjustable to different heights, to support the shoulders. Fitting inside, and attached to the upright stays, is a corset stiffened with whalebone, which serves to secure the body more firmly. The patient has returned to his home in Dakota and resumed his business. He still wears the brace, and continues to grow stronger.

The second case, some of the features of which have been mentioned, presented a similar history, the spinal tenderness occurring in the dorsal region, where there was also some degree of prominence or projection scarcely amounting to deformity. The natural curve of the spine at the seventh, eighth, and ninth dorsal vertebræ renders a very slight projection noticeable.

The symptoms differed from those of the first case in accordance with the different location of the diseases. There were pains of a neuralgic character in each side, slight cough, dyspnœa at times, and a feeling that a "full breath could not be taken." There was difficulty in going down stairs, and in lying in any position except on the back. As this patient was of more active habits than the first case, and for some time had been accustomed to out-of door life, it was thought best to permit him to go about cautiously with a plaster-of-Paris jacket on. He was impressed as much as possible with the importance of rest, but it was difficult for him to grasp the full significance of the term. His improvement has accordingly been more slow and interrupted. He seemed to be improved by cautious partial suspension, which was practised by means of Sayre's apparatus two or three times each week. He received the same general treatment as the first case. After two months the plaster-of-Paris jacket was replaced by a brace similar to that already described.

The improvement has been gradual. The tenderness over the spine and the neuralgic pains have disappeared, although they returned two or three times, as one would expect in a case not having the most watchful care as to exercise and exposure. He can now lie in any position in bed, go up and down stairs with ease, "carries" himself in a natural manner, and expects to return to his home in Texas very soon.

Among the interesting features of these two cases

[1] Read at the fifteenth semi-annual meeting of the District Medical Society of Central Illinois, at Decatur, October 28, 1890.

are their exceedingly chronic nature and the absence of deformity in one and almost an absence in the other. There was no history of injury in either case, but positions that taxed the spinal column caused fatigue.

Hilton cites a case which he attributes to fatigue from sitting on a seat at school. He states his belief "that the majority of the cases of primary disease of the spine in children, and almost all those in adults, are the results of exercise persevered in after fatigue—that is, after muscular exhaustion, or of accident, unacknowledged or overlooked." At the time that Hilton wrote it had not been definitely settled that a slight injury causing congestion or effusion is even more likely to determine a tubercular deposit in those so predisposed, than is a more serious lesion, such as fracture. He believed that the weakening or congestion of the part determined the inflammation, but the specific nature of the lesion had not been demonstrated.

The existence of tubercle in the cases I have reported is not demonstrable, but from our knowledge that such diseases are usually tuberculous, it seems probable. The greatest importance attaches to an early diagnosis in such cases, and a good deal of obscurity often surrounds them. If deformity exists, the diagnosis is easy; but although a cure is often effected after deformity has occurred, it is less certain, requires more time, and in growing children, in whom vertebral disease is most common, the angular projection is likely to increase before the health is restored.

In obscure cases pains referred to the stomach, abdomen, or other parts corresponding to the distribution of the spinal nerves, should be traced to their source. The decubitus and the carriage of the patient should be carefully observed. An apparent lateral distortion is sometimes noticed before angular projection is appreciable. A cough persisting without corresponding pulmonary conditions should excite suspicion. I remember the case of an adult which ended fatally, that came to me from the third physician by whom he had been treated. He had a deformity and was partially paralyzed, but had not been treated for anything except "lung trouble," so far as I could learn.

I saw another case in an adult soon after this at about the same stage of the disease. A diagnosis had been made, but at what time is unknown. The patient dragged one foot in walking, due to involvement of the cord. The brace on which the main reliance in treatment was placed gave very imperfect support. This patient, who died soon afterward, should have been kept in bed until his symptoms improved, or until a brace could be so adjusted as to secure fixation of the spine in a proper position.

Not all cases can be treated alike. Some patients cannot bear confinement in bed, and in such mechanical support is necessary. In some cases suspension may aid in relieving pressure and preventing deformity, while in others, in which the disease is inactive, a disturbance of latent or encapsulated tubercles may be caused by suspension, and degeneration become active.

Fibroid and cystic tumors.—I have two specimens of tumor, one of which is an example of the fibrous, the other of the cystic, variety.[1] The fibroid, which I removed from the breast of a married woman, aged twenty-two years, had been growing about two years, and was somewhat troublesome on account of the pressure made on it by the clothing.

The cyst was also of two years' growth. It was of the synovial variety, and was attached to the semimembranosus tendon, a part of the inner hamstring, from which it developed. It had become inflamed several times from bruises, and then was so sore as to interfere seriously with locomotion. Three weeks before its removal it had been accidentally injured and hæmorrhage had occurred within and around it, infiltrating the fasciæ and producing so much swelling as to obscure somewhat the form and extent of the cyst. The whole of the cyst was removed, and, on account of the extravasation, the wound was left open and packed with antiseptic gauze. The patient returned to his home in two weeks.

Natural bursæ are found in this region and sometimes connect with the knee-joint, but when they become cystic the communication is cut off. The cyst contained grumous blood with fibrinous semisolid portions, usually described as melon-seed bodies.

In this locality such tumors presenting in the popliteal space, and lying close to the arteries, may, by their pulsating character, be mistaken for aneurism; but by pushing the cyst aside, the pulsation disappears and a diagnosis is readily made.

58 STATE STREET.

MEDICAL PROGRESS.

Treatment of Valvular Disease of the Heart.—In a recent address before the Hunterian Society, DR. P. H. PYE-SMITH (*British Medical Journal*, December 20, 1890) gave the following excellent summary of the treatment of valvular disease of the heart:

After referring to the value of digitalis, especially when given with squill and black oxide of mercury in pill-form, he said that strophanthus is often a useful substitute after the long-continued use of digitalis. In his experience strophanthus has given the best results in the treatment of mitral incompetence in children. Convallaria has a very similar, though weaker, action, and is better as a diuretic than as a direct cardiac tonic.

In aortic valvular disease, uncomplicated by dropsy or venous congestion, digitalis is frequently uncertain

[1] The specimens were shown to the members of the Society.

and sometimes dangerous. Iron when well borne, strychnine, and, in many cases, arsenic, are valuable; but often the most relief is afforded by careful attention to the diet, in order to insure perfect digestion and the avoidance of flatulence. The author has been disappointed in the effects of belladonna on aortic valvular disease. When there are pain, headache, and symptoms resembling those of aortic aneurism, or attacks resembling angina pectoris, nitroglycerin and nitrite of amyl are extremely valuable remedies; but in many cases the application of leeches over the sternum, or small and repeated bleedings from the arm, are more efficient than any drugs. Ether, particularly in the form of Hoffmann's anodyne, strychnine and aromatic spirit of ammonia, are very useful in the cardiac dyspnœa and distress which accompany most cases of aortic disease.

In advanced cases of mitral disease with anasarca, opium is usually contra-indicated. But in disease of the aortic valves opium, in the form of laudanum or Dover's powder, may frequently be given at night with great relief and no bad effects. In such cases the opium should be given by the mouth rather than hypodermically. Potassium bromide and chloral often produce unpleasant effects; and in cases of restlessness and discomfort, tincture of hyoscyamus, given in hot brandy and water, is useful.

For the severe headache which often accompanies cardiac disease, antipyrine is sometimes given, but is dangerous and uncertain. Paraldehyde has been much used to secure sleep, but it often fails. Chloralamid, given in twenty-grain doses, frequently acts extremely well, and the author has seen no ill-effects from it, except dermatitis in one case. Sulphonal has also proved useful in his experience.

Another important point in the treatment of cardiac disease is the proper employment of venesection. In cases of aortic disease, when the pain and other symptoms resemble aortic aneurism, the abstraction of from four to six ounces of blood is sometimes very effectual, but less frequently than in cases of aneurism. When the right heart is distended, the whole venous system engorged, the skin cyanotic, and the pulse small, weak, and fluttering, moderate bleeding will sometimes give relief, but is seldom of lasting benefit.

Referring to Oertel's treatment of heart-disease by regulated gymnastics, Dr. Pye-Smith said that to him it did not seem to have either physiology or experience in its favor. Cardiac gymnastics are already provided for by the necessities of the circulation, and there is no fear of the heart being too idle, but, on the other hand, great fear of its being taxed beyond its strength.

Guermonprez's Method of Reducing Backward Dislocation of the Femur.—DR. CATOIR describes Guermonprez's method of reducing backward dislocations of the femur as follows:

The pelvis is fixed by the left hand of the operator placed upon the iliac spine, his right hand then grasps the patient's leg, the knee being in a position of extreme flexion, and forcibly flexes the slightly-abducted thigh until its anterior surface rests upon the abdomen. To-and-fro movements of inward and outward rotation are now executed until the head of the femur rests against the acetabulum, when direct pressure, either by the hands of an assistant or the knee of the operator, completes the reduction. During the last part of the manipulations the extreme flexion of the thigh upon the abdomen should be slightly relaxed. The method is most useful in old cases, and particularly when the operator is without assistance. Guermonprez employed it [presumably successfully] under anæsthesia in an iliac luxation of eight weeks' duration, having on the previous day rendered the head of the femur mobile by means of flexion.—*Annals of Surgery*, December, 1890.

The Symptoms and Treatment of Diabetic Coma.—SCHMITZ (*Berliner klinische Wochenschrift*) recognizes two distinct varieties of diabetic coma. The first is due to weakness of the heart, caused by the effect of the sugar in the blood upon the muscular fibres. In such cases the face is cyanotic, the respiration rapid, the pulse slow and small, becoming rapid and irregular on exertion, the cardiac impulse is scarcely perceptible, and the first sound almost inaudible. In order to prevent coma in such cases everything that excites the heart must be avoided and exercise must be limited. All potassium salts including the bromide, salicin and its compounds, antipyrine, antifebrin, and hot baths are contraindicated. Narcotics should not be used unless they are absolutely necessary. The treatment of the diabetes must not be neglected. If the symptoms are very marked the patient must not be allowed to rise from the recumbent position for any purpose. Black coffee is the best stimulant to give by the mouth, and if it causes vomiting musk or camphor may be given hypodermically. Schmitz makes it a rule not to permit the patient to rise until the first sound of the heart becomes clear.

The second form of diabetic coma the author considers an acute self-infection, incorrectly called acetonæmia. This condition is preceded by symptoms mistaken for indigestion, namely, lack of appetite, eructations of offensive gases, sleepiness, etc. Sleep is unrefreshing; there is usually constipation, sometimes diarrhœa, and the tongue is dry and coated. These symptoms continue for about two days, when the patient becomes restless and drowsy; the respirations increase to 45, the pulse to 130 or more, and the temperature is somewhat elevated. The patient can be aroused from his sleepy condition by a loud call, but immediately relapses into semi-stupor. He complains of thirst and of pain in the upper part of the abdomen, which, however, is not tender. The pain may be paroxysmal and intensely severe. After violent efforts vomiting of greenish fluid occurs, and the pain is somewhat relieved. A physical examination of the lungs reveals nothing abnormal. The pupils are usually contracted and do not respond to light. Later, violent tonic and clonic spasms occur, and death in coma follows.

In the treatment of this form Schmidt recommends the administration of one or two tablespoonfuls of castor oil, whether the bowels are constipated or not. The purgative is given in order to remove the products of decomposition in the bowels, these products being the cause of the symptoms. After purgation the symptoms rapidly disappear. Of eight cases of this variety in the author's experience, four not treated with the oil died, and the remaining, treated with it, speedily recovered.—*Medical Chronicle*, November, 1890.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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Subscription Price, including Postage in North America.

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SATURDAY, JANUARY 10, 1891.

A STATE BOARD OF MEDICAL EXAMINERS.

IT needs little argument to prove that the productive energy and wealth of a community depend directly upon the health of its individual members. Any factor, therefore, which prevents the occurrence of disease or which shortens the duration of disability from unavoidable disease or injury conduces to the welfare and progress of the State. It cannot be gainsaid that an essential in every well-regulated community is the assurance to the citizen that the person to whom he intrusts himself for medical treatment shall have an average knowledge of medical science. The principle involved is the same as that which has led governments to insist upon licences being obtained by pilots, steamship engineers, apothecaries, and others, before they assume to offer their services to the public.

The Act to establish a State Board of Medical Examiners and Licensers, which is published in this issue of THE MEDICAL NEWS, has this object in view, and ought to receive the earnest support of every intelligent reader.

The amount of suffering due to unnecessarily prolonged illness due to ignorant medical attendance, and the cost to the State of supporting in poor-houses disabled artizans whom early intelligent treatment would have made self-supporting, is scarcely realized by physicians themselves, and is an unknown quantity to the average layman. Unfortunately, too, it is usually those least able to bear an enforced abstinence from remunerative work who fall into the hands of uneducated or imperfectly-educated practitioners of medicine.

The purchase of bogus diplomas, the ignorance of many graduates coming from low-grade or poorly-equipped schools, and the expulsion of such ignorant practitioners from eighteen other States having boards of examiners, have flooded Pennsylvania with men totally unfit to have the care of the sick or injured. The necessity for a law requiring all *newcomers* to show evidence of fair medical knowledge before settling for practice in Pennsylvania has thus become imperative.

Official reports show that in the United States there have existed at least eighteen colleges from which diplomas could be purchased without the purchaser having studied medicine. How many possessors of these bogus diplomas are now posing as competent physicians is unknown. It is known that there have registered as physicians in Pennsylvania since the present defective registration law was enacted in 1881, at least 932 persons who have no diploma. In Allegheny County alone there have been about 100 such cases, and nearly as many in Philadelphia County. Nearly ten per cent. of all registered practitioners in Pennsylvania are without that slight evidence of medical education which even the poorest diploma gives. From official sources the fact is apparent that at least 222 persons have registered in Pennsylvania who possess diplomas from schools known to have been engaged in selling bogus diplomas.

The present law for the registration of physicians is notoriously imperfect in its results, so far as protecting the public from incompetence is concerned. This is due to the obscure wording of the law, which renders more than one interpretation possible in important sections, and to the circumstance that it places the carrying out of its provisions upon clerks in the offices of the Prothonotaries. These persons often are unfamiliar with the appearance of medical diplomas, frequently have no knowledge of the existence or non-existence of schools purporting to have issued any particular document, and are frequently being succeeded by other clerks even less familiar with such matters than themselves.

It is more than probable that these and other causes have permitted illegal registration in every

county of the State. Wherever careful inspection of the Prothonotary's records has been made by competent observers, numerous examples of improper registration have been found. In a series of eight counties, none of which contained large cities, forty-nine palpable instances of such illegality were recently found. In at least one populous centre this irregularity is known to be even worse.

The bill as now drafted, and which will be presented to the Legislature at an early date, is one fair in all its details. The candidate for license to practise must be a graduate, his paper is examined by those to whom his identity is unknown, his examiners are unconnected with medical schools, and he can select the system of materia medica and therapeutics in which he wishes to be examined.

The Executive, who appoints the Board, is untrammelled, except that he must give representation to at least nine different counties. Hence, none of those who believe in special systems of medical practice need fear exclusion from representation on the Board.

The recognition of diplomas and the determination of the physician's fitness to practise are now controlled by similar boards in States aggregating a population of about 20,000,000. The satisfactory result of such control indicates that Pennsylvania will be benefited by similar legislative action, and especially so, as this Commonwealth is now one of the States to which the ignorant and bogus practitioner gravitates because excluded from practising in those States whose people are protected by effective laws.

Let Pennsylvania do as has been done by North Carolina, South Carolina, Alabama, Illinois, West Virginia, Virginia, Colorado, Mississippi, Minnesota, Iowa, Missouri, New York, Montana, New Jersey, California, Florida, Tennessee, Oregon, and Canada, and her tax rate for the maintenance of almshouses can be diminished.

In the States of Maine and Maryland similar Acts have been passed by the Legislatures, but in each instance vetoed by the Governor. It is probable, however, that these States will, at an early day, again pass such laws, and join the number which believe that incompetent and ignorant physicians are a menace to the welfare of the State.

THE NEW SURGEON-GENERAL.

THE appointment, by the President, of Colonel Charles Sutherland to the position of Surgeon-General of the United States Army, with the rank of Brigadier-General, cannot fail to be well received by many of the profession, and by the branch of the service of which he is a member. By the rule of seniority, Dr. Sutherland had a claim to the appointment, and we believe that this fact had something to do, as it should, with the President's decision. While THE MEDICAL NEWS favored the cause of Dr. Billings, it cannot but believe that the medical department of the Army will be well cared for, since the present chief has had so much experience as to render his capability of dealing with his new duties undoubted. Dr. Sutherland entered the service in 1852, being appointed from Pennsylvania, and has a record untarnished both in professional and Army life.

REVIEWS.

MANUAL OF WEIGHTS AND MEASURES, WITH RULES AND TABLES. By OSCAR OLDBERG. Third edition, revised. Chicago: W. T. Keener, 1890.

To those who are already familiar with this useful little book it is unnecessary to speak well of it, and to those who are not fortunate enough to possess it we would earnestly recommend its purchase, particularly if they are engaged in pursuits which bring them in contact with the metric system or with accurate measurements. The very large number of books intended to provide for similar wants may, perhaps, be useful, but Prof. Oldberg has surpassed them, as much that is usually uninteresting is presented in so clear a manner that one cannot fail to understand what he reads on a single reading, while the tables are models of completeness. We believe that, if this book could be put into the hands of many medical students, it would not only be of great service to them during their college life, but be a valuable hand-book for reference in after-practice.

THE MICROÖRGANISMS OF THE HUMAN MOUTH, AND THE LOCAL AND GENERAL DISEASES WHICH ARE CAUSED BY THEM. By WILLOUGHBY D. MILLER, D.D.S., M.D. Illustrated. Philadelphia: The S. S. White Dental Manufacturing Co., 1890.

DR. MILLER'S book is not only interesting because of the studies and results which it details, but also because the author is at present one of the Professors in the University of Berlin, and a graduate of an American dental school, namely, the Dental Department of the University of Pennsylvania.

The volume is rendered particularly attractive to those who are interested not only in diseases of the mouth, but in bacteriology in general by reason of the very clear and well-executed cuts which are found on almost every page, while in addition to these will be found mounted photographs of the microörganisms which have been studied.

It has been said by some dentists that they fail to understand why the following of their profession did not

place them upon the high professional and social standing attained by doctors of medicine, and the real reason lies in the failure of most of them to do any original work save that which has a direct pecuniary reward. This book is, therefore, particularly refreshing, as showing that at least some members of the dental profession are awake to the necessity of careful scientific research and observation. Dr. Miller's book should be in the hands of every dental and oral surgeon, and if it is not successful, the author can rest assured that the fault does not lie with himself, but with his professional brethren.

DISORDERS OF THE MALE SEXUAL ORGANS. By SAMUEL W. GROSS, A.M., M.D., LL.D. Fourth edition. Revised by F. R. STURGIS, M.D. Philadelphia: Lea Brothers & Co., 1890.

DR. GROSS'S book upon disorders of the male sexual organs is so well known to most of the profession, both in this country and abroad, that it is hardly necessary to do more than make a note of the fact that the fourth edition has appeared under the editorial care of Dr. Sturgis. Everyone who knows Dr. Sturgis's writings will at once recognize the fact that the publishers have done well in obtaining so thoroughly qualified an editor for so successful a book, and it is no reflection upon its author when we add that Dr. Sturgis's touch has improved the volume.

PROGRESSIVE EXERCISES IN MEDICAL CHEMISTRY. By HENRY LEFFMANN, M.D., Ph.D., and WILLIAM ADAM, M.A., Ph.D. Philadelphia: P. Blakiston, Son & Co., 1890.

THIS little book, which is bound at the upper margin instead of upon the left-hand side, in order to make it more convenient for the table of the analytical chemist, will, no doubt, prove valuable to those professional men who desire to carry out certain experiments or tests without recourse to books in which information is imparted in a more diffuse manner.

Dr. Leffmann has so frequently shown that he is capable of proving the analyses of which he teaches, that we have full confidence in his work, and recommend this book to any members of the profession who are interested in such matters.

A LATIN GRAMMAR OF PHARMACY AND MEDICINE. By D. H. ROBINSON, Ph.D., and L. E. SAYRE, Ph.G. Philadelphia: P. Blakiston, Son & Co., 1890.

THE object of this useful book is a very laudable one, namely, to improve, if possible, the Latin used by both physicians and druggists, chiefly in the prescribing of drugs. While it is true that many of the profession find it unnecessary to remember the genitive endings of words used in medicine, because of the customary abbreviations in prescription-writing, there are others who frequently desire to write their directions to the druggist in Latin in order that the patient may not learn of facts about which it is often necessary for him to remain in ignorance. We hope that the book will prove a success, and by its general employment in both pharmaceutical and medical schools improve the knowledge of Latin in both professions.

CONTRIBUTION A L'ÉTUDE DES PSOROSPERMOSES CUTANÉES ET DE CERTAINES FORMES DE CANCER. MALADIE DE LA PEAU DITE MALADIE DE PAGET. By LOUIS WICKHAM. Paris: G. Masson, 1890.

THIS capital monograph is composed of three parts. The first is a clinical study based upon the literature of Paget's Disease of the Nipple, containing especially full quotations from American authors, and a series of previously-unpublished observations. The second part deals with the anatomico-pathological nature of the malady, and is rich in liberal extracts from published researches, containing as well a number of new cases and a report of the histological examinations. The reader is here introduced to the remarkable observations of Darier on the forms of psorospermiæ seen in this disease. The final section includes a well-digested account of the pathogenesis of the affection, and the conclusions are reached that this malady should be considered as a special disease of the superficial epithelium, consisting of various grades of cellular proliferation; that it is a chronic disorder of the skin, due to parasites of the order of psorospermiæ; and that these parasites seem to have a direct influence upon the future development of epithelioma.

If these facts are accepted, and as microscopical examination of the small crusts from the diseased nipple affords an excellent and rapid method of diagnosis depending upon either the presence or absence of the parasitic sporozoa, the author argues that the disease of Paget in the first two degrees of the lesion should be treated, not by radical extirpation, but by the application of anti-parasitic substances. The curability of the affection in the earlier periods of its existence is readily conceived from this theory of its pathogenesis. Full directions for treatment according to the rules formulated by Darier are given, with a complete list of the most serviceable applications. Two excellent chromo-lithographs of "this disease of the skin, called the disease of Paget," and a number of beautifully-executed plates illustrating its histology and the habitat of the psorospermiæ accompany the volume. This excellent research commends itself alike to pathologists, dermatologists, and practical surgeons.

SAUNDERS' QUESTION COMPENDS: ESSENTIALS OF MINOR SURGERY AND BANDAGING. WITH AN APPENDIX ON VENEREAL DISEASES. Illustrated. By EDWARD MARTIN, M.D. Philadelphia: W. B. Saunders, 1890.

THIS is one of the best condensations of the subjects of which it treats that has been placed before the profession for a long time. Most of these books make the mistake of detailing at unnecessary length all the possible forms of bandages which can be applied to the human body, and leave the reader stranded upon a shore where he can find nothing that will aid him in clearing up his ideas for treatment. The cuts which are introduced, although numerous, are all of them appropriate. Most of our readers will be interested to learn that the chapter upon Genito-urinary Diseases, though necessarily short, is sufficiently complete to make them feel thoroughly acquainted with the most advanced views on the subject, after having read each sentence carefully.

The publisher has been unusually fortunate, we under-

stand, in most of the numbers of this series, and we shall be surprised if the twelfth volume does not meet with more than the success obtained by the others.

SOCIETY PROCEEDINGS.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meetings, October 24, and November 7, 1890.

THE PRESIDENT, F. J. SHEPHERD, M.D., IN THE CHAIR.

DR. W. A. MOLSON showed the stomach of an old woman. The organ was pyriform, the size of the closed fist; its walls were half an inch thick, and its capacity only four ounces. Microscopical examination proved it to be carcinomatous. The physical signs during life were insufficient to base a diagnosis upon.

Dr. Molson also showed a man aged thirty years with ankylosis of the spinal vertebræ. His neck was curved forward, but his head moved freely on the axis. This condition had been developing for three years. The muscles of the back were not wasted, but were abnormally firm. In the absence of a history of venereal disease the possibility of malingering had arisen; under ether, however, the vertebræ from the axis to the sacrum were found immovable. The man had had a slight attack of inflammatory rheumatism three years previously.

DR. JAMES BELL showed specimens from a case of malignant disease of the tongue. The organ and the floor of the mouth had been removed by an incision under the chin. The man died of gangrene of the lungs forty days after the operation.

DR. WILLIAM GARDNER showed a specimen of tubal pregnancy the size of a hen's egg. The fœtus was not found, but the villi made the diagnosis positive. The patient was a married woman, twenty-six years of age. The rupture occurred when gestation had advanced about two months and a half. On opening the abdomen a large quantity of effused blood was found. The patient made a good recovery. This is the second case observed in the practice of Dr. Gurd, and the third operation by Dr. Gardner, two of which were successful.

Meeting of November 7, 1890.

DR. JOHNSTON showed, for Dr. Molson, specimens from a case of general syphilitic infection. The specimens were portions of the tibia and calvarium, showing much thickening and induration; a thickened plaque from the pharnyx; and a rectal ulcer. The patient, a man of sixty years, had had perityphlitis and diarrhœa for three years. A peculiarity of the case was that the rectum was on the right side of the pelvis.

DR. H. L. REDDY reported the case of a woman of twenty years, who died suddenly, after a few days' illness which did not seem dangerous. A small, sharply-defined ulcer was found in the posterior wall of the stomach. Two years ago she had been treated for symptoms pointing to gastric ulcer, but had apparently recovered, and subsequently gave birth to a child and acted as wet-nurse.

DR. F. R. ENGLAND showed a patient who had a pedunculated tumor the size of a goose-egg and resembling a scrotum, springing from the perineum. Examination after removal, he said, would alone disclose its real nature.

DR. R. L. MACDONNELL related the history of a remarkable case of enlargement of the liver. The patient was a married woman aged thirty years, who had had good health until five years ago, when, after the birth of her first child, she suffered from a prolonged purulent discharge from the genitals. She has had two other children, and two miscarriages. Syphilis cannot be excluded, her husband being depraved. She has never suffered from serious digestive disturbance, nor from hæmatemesis, diarrhœa, melæna, hæmorrhoids, ascites, or jaundice. There is no appearance of ill health. The abdomen and legs are not swollen, and there are no enlarged abdominal veins. External evidences of syphilis are wanting. The margin of the liver can be felt two inches below the umbilicus, the notch between the lobes being perceptible. There is no pain on palpation. The upper border of hepatic dulness is two inches above the nipple, thus the hepatic dulness in the nipple-line is *thirteen and a half inches*. The growth of the liver has been slow and imperceptible. Examination of the urine gave no evidence of disease. The case was considered one of waxy liver, remarkable for the huge size of the organ, the hepatic dulness exceeding that of any case recorded. The waxy liver moulds itself over organs and spreads in the direction of least resistance. A liver nearly as large as this is described by Murchison. The absence of albumin in the urine weakens the diagnosis, but cases are on record of amyloid livers with normal kidneys, and moreover, kidneys may undergo degenerative changes without giving rise to albuminuria.

DR. J. A. HUTCHINSON showed a phosphatic calculus the size of a Haricot bean, which had been removed from under the tongue of a man.

Officers for the ensuing term: *President*, F. J. Shepherd, M.D.; *Vice-Presidents*, A. Proudfoot, M.D., R. L. MacDonnell, M.D.; *Secretary*, J. G. McCarthy, M.D.; *Librarian*, F. W. Campbell, M.D.; *Council*, James Bell, M.D., James Stewart, M.D., G. E. Armstrong, M.D.

CORRESPONDENCE.

CHICAGO.

(*From our Special Correspondent.*)

AT the meeting of the Illinois State Board of Health, recently held in Chicago, Dr. John H. Rauch, Secretary, presented his quarterly report, which was full of interest, and from which we will give a few extracts:

The general health in Illinois has been very good, and no disease has been particularly prevalent. Outbreaks of diphtheria have occurred in the southern and other portions of the State, but where the disease spread it was mainly owing to municipal neglect in enforcing the rules and requirements of the Board.

Scarlet fever of a mild type has been prevalent at Quincy, Monarch, Sumner, Decatur, and other places. Typhoid fever has been reported near Urbana, Clayton, Carthage, and Centralia. The outbreak near Urbana was especially virulent, in a family of eleven, nine having

died. Dr. Rauch is satisfied that if the proper sanitary precautions had been promptly taken the mortality would not have been as great.

On September 11th four persons were poisoned at Macomb by eating custard. It was supposed that the vanilla flavoring-extract was the cause, but Professor Long made an analysis of the vanilla, and found nothing deleterious in it, and is of the opinion that the cases were ptomaïne-poisoning.

Dr. Rauch dwells upon the necessity of making diphtheria a quarantinable disease at the maritime ports. While returning to the United States on one of the most popular lines of ocean steamers he found that a death had occurred in the steerage from diphtheria, and no special precautions were taken to prevent the spread of the disease. From observations made on the steamer Dr. Rauch thinks that proper care is not taken in the inspection of immigrants with reference to vaccination.

Dr. Rauch's remarks upon the prevalence of cholera in Europe and Asia, and the probabilities of its reaching this country next year have already appeared in THE MEDICAL NEWS.

Relative to the Medical Practice Act he said that at no time since the organization of the Board has there been such a rush of medical men to Chicago as during the past three months. More than two-thirds of the certificates issued were to physicians who wished to practise in Chicago. And never before in the same length of time have so many professional frauds attempted to obtain a foothold in Chicago. It is evident that the increase of population and especially the coming World's Fair are the attractions. Eleven applicants were refused licenses because they had diplomas from schools not in good standing, because their professional records had been tarnished elsewhere, or because they could not comply with the requirements of the Board. The anxiety to settle in Chicago is also manifest in the incorporation of so-called medical companies, medical associations, and dispensaries, thus taking advantage of the lax laws and attempting to evade the Medical Practice Act.

It is undoubtedly the duty of the Board to do all it can, to protect not alone the citizens of Chicago from this class of frauds, but the visitors to the World's Fair as well.

During the quarter there were received in the Secretary's office 1775 written communications—exclusive of diplomas submitted for verification, affidavits, letters of recommendation, etc.—pertaining to 124 applications for certificates entitling to practise medicine, and twelve applications from midwives. There were issued ninety-seven certificates based on diplomas of medical colleges which conform to the standard of minimum requirements; ten to graduates who were required to supplement their diplomas by evidence of proficiency in the subjects or branches omitted by their respective colleges; and six duplicates upon proof of loss or destruction of the original. Eleven applications were rejected because of inability to comply with the law. Certificates were also issued to seven midwives and licentiates; to three upon examination. Two were rejected. One itinerant license fee of $100 was refused. Letters of inquiry have been more than usually numerous from medical colleges and from boards of medical examiners with regard to the status of medical colleges.

GANGRENOUS STOMATITIS.

To the Editor of THE MEDICAL NEWS,

SIR: In your issue of November 15, 1890, there is reported by Dr. W. P. McDonnald, of Hill City, Tenn., a case of cancrum oris, or gangrenous stomatitis. I wish to put on record a similar case.

On August 10, 1890, I was called to see Anna D., aged eight years, who for six weeks previously had been suffering from typhoid fever. When I saw her she had no fever, was very much emaciated, and had not strength enough to raise her head from the pillow. The contents of the bowels and bladder were passed involuntarily. There was a purple spot on the right cheek; the circumference was hard and the centre thin and soft. There was a very offensive discharge from an ulcer on the inside of the cheek. She had been allowed to scratch this ulcer, and no regard was paid to cleaning her face and hands. Her eyes were closed, and her mother told me that they had not been opened for ten days. I washed her face and gently separated her eyelids, to find that purulent ophthalmia had destroyed both eyes. I had little hope of her recovery, but put her on stimulants, nutritious diet, and anodynes, and used a mouth-wash composed of equal parts of "Listerine" and glycerin. On the following day the left cheek became involved, and the ulceration soon extended to the inferior maxillæ on both sides. She lost several teeth with pieces of the maxillary bone. Strange to say, the patient recovered in about three weeks, but she is totally blind, her face is disfigured, and her mouth is closed by a fibrous adhesion between the cheek and lower jaw on the right side. She feeds herself through an opening made by the loss of two or three teeth on the left side. When the adhesion is broken up or cut through, she will be able to open her mouth.

J. T. GRAHAM, M.D.

WYTHEVILLE, VA.

NEWS ITEMS.

AN ACT

To Regulate the Practice of Medicine and Surgery, to establish a State Board of Medical Examiners and Licensers, to define the powers and duties of such Board, the qualifications of applicants for license, the manner of licensing, and making an appropriation for said Board.

Whereas, The safety of the public is endangered by incompetent physicians and surgeons, and due regard for public health and the preservation of human life demands that none but competent and properly-qualified physicians and surgeons shall be allowed to practise their profession;

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by authority of the same, that within one month after the passage of this Act the Governor shall appoint a State Board of Medical Examiners and Licensers consisting of nine members, three to serve for one year, three for two years, and three for three years in the first instance, and thereafter annually the Governor shall appoint three

members to serve for three years in place of those whose terms then expire. The said persons so appointed shall be graduates of some legally-chartered college or university having the power to confer medical degrees, citizens of the United States and of this Commonwealth who shall have been in the active practice of medicine or surgery for a period of not less than ten years, but no two of whom shall be residents of the same county (and none of whom shall be members of the faculty or staff of any medical school or university). Each member of the said Board shall receive a certificate of appointment from the Governor, and shall file the same within twenty days with the Prothonotary of the Court of Common Pleas of the county in which said member is registered under existing law.

SEC. 2. The said Board shall be known by the name and style of the State Board of Medical Examiners and Licensers of the Commonwealth of Pennsylvania, and shall have a common seal, and may make and adopt all necessary rules and regulations and by-laws not inconsistent with the Constitution and laws of this Commonwealth, or of the United States, and shall have power to locate and maintain an office within this State for the transaction of business. Five members of the said Board shall constitute a quorum for the transaction of business.

SEC. 3. Every appointment to fill a vacancy or vacancies in the said Board shall be for the unexpired term, and the said vacancy or vacancies shall be filled by the Governor within sixty days after the notification of the same by the Board, and he shall have power to remove any member of said Board for criminal, scandalous, or dishonorable conduct.

SEC. 4. The said Board shall organize at Harrisburg within three months from the date of their appointment, and shall elect from its own number a President and Secretary who shall also act as Treasurer, both of whom shall hold their offices for one year, or until their successors are chosen.

SEC. 5. The members of the said Board shall each receive a salary not exceeding three hundred dollars per annum, to be paid out of the fees for examination. The Secretary and Treasurer shall receive an additional salary, to be fixed by the Board, and shall file with the President of the Board a bond in the sum of one thousand dollars, conditioned for the faithful performance of his duties. The necessary expenses of the said Board shall also be paid out of the fees, except as provided in Section 12 of this Act, and any balance remaining from the fees, after the disbursements herein specified, shall be paid into the treasury of the Commonwealth.

SEC. 6. The said Board shall examine all applicants for license to practise medicine or surgery in this Commonwealth who are properly qualified according to the provisions of Section 7 of this Act, and no one shall be excluded or rejected on account of adherence to any special system or school of practice. It shall hold two stated meetings in each year, one at Pittsburg and one at Philadelphia, respectively, and may hold special meetings at such times and places as it may deem proper. All examinations, when practicable, shall be conducted in writing, and all examination papers, together with the reports and action of the Examiners thereon, shall be preserved among the records of the said Board for a period of five years, during which time they shall remain open for inspection at the office of the said Board.

The applicants shall be examined in anatomy, physiology, chemistry, toxicology, pathology, hygiene, materia medica, and therapeutics, principles and practice of medicine, surgery, and obstetrics, and each applicant upon receiving from the Secretary of the Board an order for examination shall draw by lot a confidential number, which he or she shall place upon his or her examination paper, so that when said papers are passed upon by the Examiners the latter shall not know by what applicant said papers have been prepared, and upon each day of examination all candidates shall be given the same set of questions. Provided that any candidate for examination may elect the system of materia medica and therapeutics in which he or she shall be examined.

SEC. 7. Any person on paying twenty dollars to the Secretary of said Board, and on presenting satisfactory proof of being over twenty-one years of age, of good moral character, and of having received a sufficient preliminary education, as defined by said Board, and a diploma from some legally-incorporated medical college or university having authority to confer degrees in medicine, shall be entitled to examination by said Board, and in case of failure at any examination shall have the privilege of subsequent examinations without the payment of an additional fee. Each applicant who shall have passed a satisfactory examination shall receive from the said Board, under seal, a license to practise medicine and surgery in the Commonwealth of Pennsylvania, and the said Board may at its discretion grant licenses, without examination, to persons holding licenses from similarly-constituted boards of examiners or boards of health in other States.

SEC. 8. The Secretary shall record in a book to be kept for this purpose in the office of the said Board, the name, age, sex, residence, date, and place of examination, the examination number, the examination average on each branch, the general average, and the date of issue of license, in case such license is granted. Said book shall be open to public inspection, and on or before the last day of December of each year the said Board shall publish, or cause to be published, a list of the names and addresses of such persons as shall have received licenses from the said Board within twelve months immediately thereto preceding.

SEC. 9. After the first day of July, Anno Domini one thousand eight hundred and ninety-one, no person shall enter upon the practice of medicine or surgery in the State of Pennsylvania unless he or she has complied with the provisions of this Act, and shall have exhibited to the Prothonotary of the Court of Common Pleas of the county in which he or she desires to practise medicine or surgery, a license duly granted to him or her by the said State Board of Examiners and Licensers, whereupon he or she shall be entitled, upon payment of one dollar, to be duly registered in the office of the Prothonotary of the Court of Common Pleas in said county, and any person violating any of the provisions of this Act shall be guilty of a misdemeanor, and upon conviction thereof in the Court of Quarter Sessions of the county where the offence shall have been committed, shall pay a fine of not less than one hundred dollars nor more

than five hundred dollars for each offence, one-half of which fine shall be paid to the prosecutor.

SEC. 10. Nothing in this Act shall apply to commissioned medical officers of the United States Army or Navy, or of the United States Marin-eHospital Service, nor to any member of the house or resident staff of any legally-chartered medical college or university or hospital during his term of service therein, nor physicians of other States meeting duly registered physicians in this State in consultation, nor to those practising dentistry exclusively. And nothing in this Act shall be construed to prohibit the practice of medicine and surgery within this Commonwealth by any practitioner who shall have been duly registered before the first day of July, Anno Domini one thousand eight hundred and ninety-one, according to the terms of the Act entitled "An Act to provide for the registration of all practitioners in medicine and surgery," approved the eighth day of June, Anno Domini one thousand eight hundred and eighty-one.

SEC. 11. For the purpose of this Act, the words "practise medicine or surgery" shall mean to treat, operate on, or prescribe for any physical ailment of another. But nothing in this Act shall be construed to prohibit service in cases of emergency or the domestic administration of family remedies.

SEC. 12. The sum of one thousand dollars, or so much thereof as may be necessary, is hereby appropriated to meet the necessary and legitimate expenses of the said Board for the year Anno Domini one thousand eight hundred and ninety-one.

SEC. 13. All Acts or parts of Acts of Assembly inconsistent herewith shall be and are hereby repealed.

The Medical Society of the County of New York.—This Society has awarded a prize to Dr. David Cerna, of the University of Pennsylvania, amounting to $100, for his essay upon the "Physiological Action of Hydrastis Canadensis." The essay, we understand, is a very exhaustive and careful study of the subject of which it treats.

Chair of Otology in the University of Pennsylvania.—Dr. Burton Alexander Randall, a graduate of the University of Pennsylvania in 1880, has been appointed Clinical Professor of Otology in the University to succeed Dr. George Strawbridge, who resigned some months ago on account of ill health. Dr. Randall is well known in the profession, not only because of his skill in the treatment of affections of the ear, but also by reason of his careful pathological and anatomical work in connection with this portion of the body. An abstract of a very interesting paper upon "Corrosion Methods in Studies of the Ear" appeared in *The American Journal of the Medical Sciences* for January, 1891. Dr. Randall is also the author of a volume of photographs of the ear, which are extraordinary because of their skilful execution. In addition to a very wide clinical experience in this country, Dr. Randall has had ample opportunities of becoming well versed, in the subject which he is to teach, in European clinics, and we congratulate both the University and the appointee upon his accession to the professorship.

A Medical Directory.—Mr. George Keil, of 1715 Willington Street, Philadelphia, is about to publish a medical and dental register, directory and intelligencer of the States of Pennsylvania, New Jersey, and Delaware. This directory will be presented gratis to the members of the profession, the expense being paid by the advertising which it contains. It will also contain a list of the National State Medical and Dental Organizations, the names of officers, the office-hours of all doctors and dentists, with the school and year of their graduation.

A Dispensary for the Treatment of Diseases of Women by Electricity.—A dispensary for the treatment of the diseases of women amenable to electricity has been opened at 1632 Cherry St., Philadelphia, under the charge of Drs. G. Betton Massey and Horatio R. Bigelow. Physicians are invited to bring or send suitable cases on Mondays, Wednesdays, and Fridays at 3 P. M.

To Found a New College and Hospital.—The Brooklyn Post-Graduate College and Hospital has been incorporated with the following officers: President, Dr. George R. Fowler; Secretary, Dr. Reuben. These officers, with Drs. Glentworth, Butler, and Charles Jewett, will form the Governing Council. The Board of Managers consists of Drs. West, Van Cott, Fuhs, Lennox, Browning, Price, Dayton, and Pilcher, and Mr. Wensley. The institution will provide for instruction in all departments of medicine and surgery and a dispensary will be established. The site of the buildings is not yet determined.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 30, 1890, TO JANUARY 5, 1891.

By direction of the Secretary of War, the following-named medical officers will proceed, without delay, to Pine Ridge Agency, South Dakota, and report in person to the commanding general Department of the Platte, for duty in the field: HENRY S. KILBOURNE, *Captain and Assistant Surgeon;* EDWIN F. GARDNER, *Captain and Assistant Surgeon;* and EDWARD EVERTS, *Captain and Assistant Surgeon.*—Par. 9, *S. O. 304, A G. O.*, December 30, 1890.

By direction of the Secretary of War, JOHN V. LAUDERDALE, *Major and Surgeon*, now on duty at Fort Ontario, New York, will proceed, without delay, to Pine Ridge Agency, South Dakota, and report in person to Brigadier-General John Brooke, for duty in the field, and by letter to the commanding general Department of Dakota.—Par. 8, *S. O. 303, A. G. O., Washington, D. C.*, December 29, 1890.

By direction of the Secretary of War, the extension of leave of absence, on account of sickness, granted STEVENS G. COWDREY, *Major and Surgeon*, in Special Orders, No. 293, December 16, 1890, from this office, is still further extended one month, on account of sickness.—Par. 8, *S. O. 302, A. G. O., Washington, D. C.*, December 27, 1890.

By direction of the Secretary of War, OGDEN RAFFERTY, *First Lieutenant and Assistant Surgeon*, is relieved from duty at Fort Sam Houston, Texas, and will report in person to the commanding officer Camp Eagle Pass, Texas, for duty at that station, reporting by letter to the commanding general Department of Texas.—Par. 2, *S. O. 301, A. G. O.*, December 26, 1890.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 3, 1891.

PICKERELL, G. MCC., *Assistant Surgeon.*—Detached from the U. S. Receiving-ship "Minnesota," and wait orders.

MCCORMICK, A. M. D., *Assistant Surgeon.*—Ordered to the U. S. Receiving-ship "Minnesota," as Dr. Pickerell's relief.